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The Fruits of Large Scale Cooperation

By O. A. Fitzgerald

THERE has been no five-cent honey in the intermountain region since the Mountain States Honey Producers' Association entered the field. Of course one must admit that natural trends have been at work to dispel some of the economic gloom that enshrouded the honey-producing industry during the years of 1926 and 1927, but this western cooperative, which already has earned the distinction of being the largest honey pool in the world, is entitled to considerable glory.

This association was formed to be a factor in the honey market. Its brief record shows that it has been so, much to the gratification of its founders and members. As a matter of fact, the Mountain States Honey Producers' Association has just completed its trail blaizing, prospected its possibilities and gotten set for the big race into the future. As this is written the second honey deal has just been closed and machinery is being set in motion to handle the 1929 crop.

The Mountain States cooperative is the outgrowth of cooperative talk among western honey producers that has been heard for at least ten years. The honey producers of the West talked a lot about cooperative marketing, admitted their product lent itself admirably to an orderly all-year selling program, but nothing was done until the time came when the growers had to do something for themselves or suffer serious consequences. In the crisis, no one in the dealers' group displayed great philanthropy toward the producer. It was up to him to do something for himself and do it quickly.

At the opening of the 1926 marketing season there was considerable talk about a large holdover from the previous year's honey crop. Apparently the holdover supply was exaggerated and with the lowered production of 1926 would have constituted about a normal supply. But when many holders of large supplies rushed to market early it gave the appearance that they feared a break from which there would be no recovery. This supported the oversupply idea. The ultimate result was that in spite of the lower 1926 production the price for that year's crop was about two cents per pound lower than for the previous season.

A new type of buying also came prominently to the front at about the same time. In every line of business it is called "hand-to-mouth" buying. With speedy transportation facilities dealers found it less necessary to stock heavily. Moreover, they saw advantages in keeping their assets liquid. Instead of buying once or twice a year, they made an indefinite number of small purchases. This change in buying procedure was destined to affect the honey situation. Someone had to carry this honey. Certainly the production of the bees could not be adjusted to fit the new demands. It was a case of providing adequate storage facilities. If the speculators took the bulk of the crop they stood a chance to get it at a lower price, for upon them would rest the burden of orderly merchandising throughout the year.

Such was the situation when beekeepers' associations in the various intermountain states began considering the cooperative problem in 1926 and 1927. Sentiment was strong for cooperation in marketing. Several small regional cooperatives had achieved distinguished successes in their limited way. But everyone had the feeling that the need was for something big—something that would make its influence felt wherever honey was sold. After countless meetings, deliberations and caucuses of one kind or another, the Mountain States cooperative was formed.

What this cooperative has done in its two years of existence, some of the problems encountered, and what it hopes to do were set forth in a recent interview with A. W. B. Kjosness, general manager of the cooperative. Mr. Kjosness was one of the key men in the organization of the association. His acquaintanceship with agricultural conditions in the West eminently fitted him for this position. He had been state county agent leader with the agricultural extension division, state commissioner of agriculture, and after leaving public office was engaged in organization work with some of Idaho's leading cooperative creameries.

The cooperative now has 385 members, who own 89,000 colonies of bees. The Western Washington Beekeepers' Association, with 100 members owning 18,000 colonies, recently came into the cooperative as a body. Membership is found in the states of Montana, Wyoming, Utah, Idaho, Oregon, Washington, Minnesota, and North Dakota. Affiliation of Nevada honey producers is anticipated. The 1927 honey crop was the first handled by the cooperative. This crop, handled during 1928, amounted to 145 carloads. The honey handled within the pool was 3,656,880 pounds. The average selling price was 7.445 cents for the white honey pool, which constituted the bulk of the honey. The business done amounted to $237,401.50.

The honey deal involving the sale of the 1928 crop saw five million pounds in the pool. In addition to the honey contributed by pool members, several carloads were handled on consignment. None was sold for less than 7 cents, and in May the cleanup price was at 8 cents. The total business turnover during the last honey deal was $400,000.

That growers are well pleased with

their cooperative is the statement of Mr. Kjosness. He supports this statement by reference to membership records. Though the ten-year contract has an annual withdrawal privilege, only four members took advantage of it last year, and their reason was because they were quitting the honey producing business.

The cooperative sells its honey all over the United States and on the export market. Out of the 145 cars marketed from the 1927 crop, 75 carloads were sold to Germany, England, and Scotland. Three cars went to China. Some honey in retail packages goes to the Hawaiian Islands. Mr. Kjosness says that New York, Philadelphia, and Chicago are the big honey consuming centers. All of the eastern states produce less honey than they consume. The extent to which western producers share in eastern business depends largely upon local conditions. Sometimes a deficiency state has an exceptional honey crop, almost enough for its own needs. In such cases the western producer is shut out. Last year, for instance, the cooperative sold no honey on the Chicago market. This year a lot was sold there. If Florida is short, the cooperative would look to that region. This last year a short crop in upper Minnesota, Ohio, and Michigan developed a good outlet. The effect of local conditions on markets makes it necessary for the cooperative management to have its ear to the ground continually.

The policy of the cooperative is to warehouse the honey and follow an orderly marketing program. U. S. bonded warehouses are used. The receipts from these warehouses are accepted as collateral security and are negotiable. Warehouses used by cooperative members are at Minneapolis; Fargo; Hardin and Billings in Montana; Seattle; Portland; Boise, Twin Falls, Buhl, Burley, Blackfoot, in Idaho; Ogden, Salt Lake, and Price, in Utah. Large blocks of the new crop are sold as quickly as it arrives, but the cooperative finds it highly profitable to give considerable attention to the warehousing matter.

One of the important points Mr. Kjosness has observed is that it is fine to protect the cooperative's customers. He does this by always having honey on hand. He desires his customers to feel that whenever they are in need of honey they can obtain it from the cooperative. For this reason the cooperative manager says he does not want his honey supply ever to run out. If sometime a patron should be forced to go elsewhere for honey, he might keep on going there.

In the brief period of two years this western cooperative venture has become the largest honey pool in the world. The New Zealand pool, Mr. Kjosness explained, shipped about one hundred tons last year, but that quantity was only about one-third of the Idaho crop. No firm, private or otherwise, controls as large a block of honey, he declares. For this reason the cooperative has been able to do what its backers wanted it to do—exert a stimulating influence on the market.

The honey from the region which this cooperative claims as its home is of fine quality. The bulk of the production is uniform white honey. It carries, explains Mr. Kjosness, from 85 to 87 pounds of sugar per 100 pounds of honey, while that from most other states carries 75 to 77 pounds. The honey is used by confectioners, bakers, and recently cigaret manufacturers joined the ranks of honey buyers. They use the product to sweeten their manufactured article.

The states figuring in this western honey deal produce only about 10 per cent of the honey of the United States, but this production constitutes about 40 per cent of the interstate movement. California is the big honey producer. Its production also constitutes about 40 per cent of the interstate honey. Thus, if California producers were to organize a strong cooperative and join with the Mountain States producers group, they would have between them control of about 80 per cent of the interstate honey movement.

Several interesting trends in the honey industry are cited by Mr. Kjosness. In the first place the American producer is running into plenty of stiff foreign competition. It is coming from many different sources. At present honey from New Zealand, Guatemela, Chile, and Cuba are giving plenty of competition on the German and other markets previously reached by the American producer. These foreign producers are striving for lower cost of production than the American honey man can realize. A similar result may eventually be achieved by the trend toward larger producing units. Mr. Kjosness believes that the honey industry is going to a large producer basis. The small producer, who had only a few colonies and produced a small marketable surplus, is wondering whether to get out of the business or buy more bees. The big producers are increasing their colonies. This trend is recognizing the fact that in beekeeping, as in any other productive industry, there is an economic unit. The more honey that can be produced efficiently, the lower will be the cost of production per pound.

Now that the dark days are over and the sky looks brighter, Mr. Kjosness can indulge in a little retrospection. "We had hard sledding the first year," he recalls. "The Government was slow in licensing the warehouses, and the growers were slow in making their payments to underwrite the cooperative. There wasn't much money to operate on, the first year. But the greatest thing of all has been the loyalty of the members."

A discomforting chapter in the history of the cooperative is that a few of those who were most loquacious in their pleas for a honey cooperative were the least interested when they had a chance to amplify their interest in cooperation by signing on the dotted line. They made all sorts of promises in public meeting, but when it came time to make good their promises they were not to be found.

In telling the story of the cooperative's growth, Mr. Kjosness pays unstinted tribute to the Federal intermediate credit bank for its help in handling the financial problem. He says that in getting started he went to many people for help and all gave it gladly. He went to the railroads for help in handling the transportation aspect and they cooperated by extending to the honey producers the loading in transit privilege, which enables them to make more efficient use of the many warehouses scattered about the producing territory. He called upon the Government for assistance in finances and upon numerous honey experts for help on grades. "When we didn't know about something, we went to the fellow who did," he recalls.

Some figures indicating production of the western states contributing to the cooperative are provided by Mr. Kjosness. He estimates that Idaho's 1928 honey production was 208 carloads. All but ten to fifteen carloads of this production was shipped. Utah produced 120 carloads of honey that year, he estimates, about 50 per cent of it being consumed at home. Wyoming's 1928 production he estimates at 75 carloads, 60 being shipped; Montana's production at 100 carloads, 50 being shipped; North Dakota's production at 30 carloads, 20 being shipped, while Oregon and Washington produced 100 carloads and shipped about 25 carloads each.

A project that Mr. Kjosness has in mind is some sort of a campaign to increase the consumer demand for honey. This isn't a particularly new idea, of course. Advertising has been talked by honey men for a long time But, again, here is something about which little has been done. Maybe the world's largest honey pool can do something about it. Kjosness has the idea that more people would like to figure honey in their meal planning if they thought about it as

frequently as they do some of the heavily advertised products which are always making their appearance before the housewife. There has been a gradual decline in consumption, he says, because no one has been pushing the industry. Western people must know their honey better than do easterners. Out West, people eat about six pounds a year. If every easterner could be induced to eat this much honey, the American producer could afford to let Guatamela or Chile have the foreign market.

Just what sort of a program the Mountain States cooperative has in mind to get more honey eaten is not known. What the cooperative is doing in its own territory may be an indicator. It has come out with a new processed honey. It is called "Creme Whipt." The honey is whipped by some special process and is extremely palatable. This new way of serving honey is making a distinct hit on markets where it has been offered. So far it has been marketed in cans, but the cooperative is planning to adopt glass jars, the assumption being that the honey will be more attractive in jars than in cans. Small things like this are being given consideration in the campaign to get more honey eaten—which after all is about the biggest problem confronting the American honey producer today.

Drone Eggs in Worker-Cells

Just reading the article from Mr. Smith regarding small queens laying drone eggs in worker-cells. I am aware that they do when they begin to fail. According to his argument, a large queen never would lay eggs in worker-cells that would produce drones. And if this was true, and if the touch of the cell had anything to do with it, small queens would lay more drone eggs than large queens.

I have some very small queens and I have some large ones, and I never find drone eggs in worker-cells from the small queens any more than from the larger queens. And I cannot agree with Mr. Smith about a queen-cell being contracted to the size of a worker-cell when the queen places an egg in it, for I have seen eggs in queen-cells where the opening of the cell was larger than that of a drone-cell. V. E. Dehart, Needmore, N. C.

The Right Car for a Beekeeper

We find a Ford roadster, equipped with heavy rear springs and a light platform, capable of holding nine ten-frame bodies in a layer and a load capacity of 1000 pounds, is our best all-around car. We can generally load this car from one yard and handle from two to three loads a day when we are taking off honey.

A. V. Small, Kansas.

INTERESTING PERSONALITIES

Gaile Cregar

During one of the big battles of the world war, Gaile Creger served as a mark for German bullets. He was taken to the hospital with so many wounds that it was long after the war when he was out again. He was one of a lot of boys who were so badly damaged that Uncle Sam set out to find what they could do to occupy themselves profitably.

Creger looked like good material for a bee man, so he was sent to Iowa State College for a course in beekeeping. About the time that Paddock finished with him, the G. B. Lewis Company picked him for a branch manager and he has been selling Lewis Beeware ever since. At present he is in charge of the Sioux City branch and will tell you that there are more real good fellows who are big beekeepers in the Sioux City territory than anywhere else on the map.

Creger jumped into the honey producing game while he was selling supplies, but by the time he had two hundred colonies among the sweet clover fields, Uncle Sam's doctors reminded him of what the Germans had done to him in France and insisted that beekeeping was too heavy, so he finds solace with a few rabbits in the back yard, for the hours when he is away from the plant. With Mrs. Creger, who is a most winsome lady, and the two kiddies, he has a home on the shore of Crystal Lake, a few miles in the country.

A Tender Spot

A hybrid bee's the crossest thing
In all the insect population;
She's pretty sure to plant her sting
Upon the slightest provocation.

Margaret Ullmann.

An Added Factor in Successful Queen Introduction

By E. S. Miller

I was about to write American Bee Journal of our method of queen introduction, but it seems that Jay Smith has beaten me to at least a part of it in the October number. However, I think that he omits one important factor in successful introduction. I agree with him in the opinion that most failures, when the ordinary mailing cage is used, are due to the uncertain length of time required for the bees to eat through the paper. In a strong colony and in warm weather the queen may become liberated within a few hours, with the result that she is killed. A colony not so strong may require a week or more and,in the meantime, start a number of queen-cells, resulting in supersedure. Our practice is to replace the paper with a piece of tin or to plug the opening to the cage so that the bees cannot get in. The old queen is removed from the hive and the cage containing the new queen placed over or between the combs in the usual manner and left for four or five days, after which the tin is removed and the bees allowed to eat through the candy. And now comes the important point in successful requeening, namely: all queen-cells should be destroyed before the queen is liberated. While the queen may succeed in this process of destroying cells, she may not and very often is killed or superseded. We have been using this method for a considerable time and seldom lose a queen.

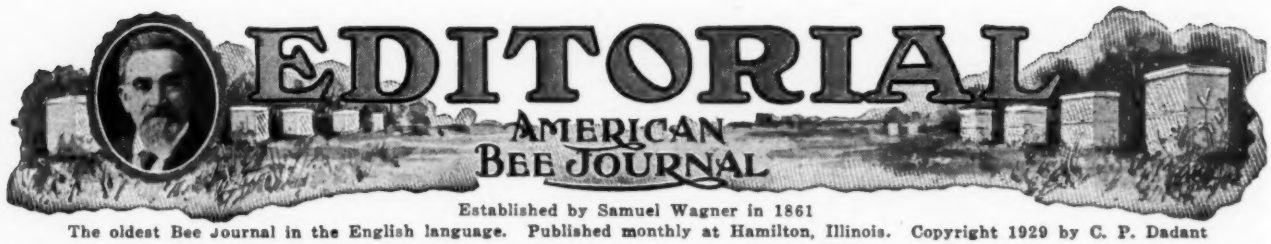
Valparaiso, Indiana.

(It appears to me unnecessary to keep the queen caged so long. If the bees appear friendly to her, on the outside, forty-eight hours has always proved sufficient to us. A very important thing to do is to remove the old queen only just before introducing the new one. In this way, there will be no queen-cells built, usually. We never had much trouble in introduction.—Editor.)

Spunky Bee Man

James Cornelius is a beekeeper in Phillips County, Colorado. He was selling honey from his truck, in Holyoke, Colorado. He was arrested, charged with violating a city ordinance governing the handling and exhibition of foodstuffs. He was fined one dollar in the county court, and right there he gave notice of appeal to the State Supreme Court, charging that the ordinance is unreasonable and discriminatory and ni violation of the Constitution of the United States.

That's fighting for a principle with a capital F. J. B. D.



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Foulbrood—Treat or Destroy?

The discussion on the above subject in our columns is getting rather sharp and would become sharper if we did not put on the brakes. We must remain within parliamentary lines, or there will be no pleasure in reading the Journal.

Is it not possible to devise a way to satisfy everybody and yet achieve cure? We are told that, from 1870 to the present time, there were seven outbreaks of the cattle foot and mouth disease in the U. S. It was recognized as impossible to eradicate the diesase without the destruction of the infected and exposed animals. So there was a cooperation of the Federal and State governments to destroy the cattle and pay the owner for the loss.

There is a very clear analogy between that cattle disease and the foulbrood of bees. Then why not use similar means wherever it is found absolutely necessary to destroy the stock? If a man is compelled to sustain a loss in order to protect others, is it not right that he should be indemnified for at least a part of what he loses?

It is not absolutely necessary to burn up the colonies in cases of foulbrood. But when only a few diseased colonies are found, it is evidently safer to do away with them entirely than to treat, especially when the matter has to be left in the hands of careless beekeepers. However, the objection of the man whose bees are to be burned, in order to protect others, is quite natural, for this constitutes a dead loss. If we indemnify him for, say half of his loss, he will be able to recuperate and will see the destructive fire used with less opposition.

On the other hand, the general apiarian public should be willing to help pay him for his loss, for the sake of protection.

This matter of foulbrood is far from being settled. There will always be some risk to run of its return, and we should study and adopt the most practical and best methods. Laws will have to be passed both by the Federal Government and by the States to put the matter of eradication in such shape as to satisfy both the sufferers and the general public.

The present trouble with the Mediterranean fruit fly and the steps taken to eradicate it from Florida are a good example of what may be done in an emergency. We have such an emergency in brood diseases and it will be absolutely necessary to take regular means of putting an end to it, while giving satisfaction to both the sufferers and the general apiarian public.

Let us discuss the matter peaceably and patiently. Let us take the best means of bringing about a solution, without doing excessive damage to anyone.

Death of a Noted Italian Beekeeper

The "Apicoltore Moderno" announces the death, in August, of Professor Carlo Passerini, who was the founder of that magazine in 1910, or nearly twenty years ago. He had stopped working upon it in 1921 for lack of health.

Russian Progress

Some people keep insisting that Russia is far behind in progress. The trouble with them is that they thought they could create a civilization as devoted as that of the bees to the common good. But that they are progressing cannot be doubted when we see their publications. We have before our eyes one of their July-August magazines, containing sixteen articles such as the following: "The Influence of Soil Humidity on the Nectar Secretion of Plants"; "The Problem of Comb Disinfection in the Control of Bee Diseases"; "Of What Color Is the Honey from Epilobium Angustifolium?" The only trouble is that we cannot read their language, while they read and comprehend ours and secure benefit from this.

American Honey Institute Meeting

One needs only to have been present at the meeting of the American Honey Institute, at the Hotel Stevens in Chicago on September 23 and 24, to have become enthused at the work of Dr. Barnard and Miss Fischer in promoting the aims of that organization from their office in Indianapolis and by their travels attending food shows, home demonstration meetings, cooking schools, etc.

All along, the beekeeper has felt that honey, owing to its historic setting, its intrinsic worth as a sweet, should claim the attention of the consuming public if only approached in the right manner. This was forcibly confirmed by Dr. Barnard, who stated that he had never worked with a food problem in which it was so easy to occupy not only the public, but also the interests who are instrumental in dissemination of food information. It only becomes necessary to compile definite and authentic information in such a way that it may become usable.

That such a program is being carried out can be attested by the fact that honey recipes are becoming more and more popular on every food page, and by the fact that bakers are so much interested in honey as to make the demand from that source especially noticeable. Several members of the Institute so stated at that meeting. A number of nationally prominent baking technicians attended the Honey Institute meeting and confirmed the possibilities of honey use in many baking avenues.

But we still lack authoritative information on the positive food value, the health value of honey. If such were available, showing that honey is superior to other sweets from a health standpoint, then we would be able to get the ear of every physician, food technician, etc., whose prime interest is in health. We as a class are firmly convinced of the health-giving powers of honey, and can cite many instances thereof. But the physician cannot well take such information. He wants scientific data based on accurate results of trained men who have made a special study of such problems. And it is along these lines that beekeepers must back the Institute, that such information may be made available.

We believe the time has come when there should be a nationwide support of the American Honey Institute, not merely by words or by association resolutions, but by actual financial support, either directly or through the American Honey Producers' League, which has put itself wholeheartedly behind the aims and objects of the organization. Associations, large and small, as well as individual beekeepers, we feel, cannot afford to neglect such a movement. It is naturally slow to gain momentum, but, like a snowball, if rolled in the right

atmosphere, soon becomes a mountain of no mean proportions.

Already the Honey Institute has had a large part in securing added appropriations for the beekeeping interests, has helped in securing reduced freight rates on honey and on beeswax, and has done a mass of work on honey publicity; it was of the greatest good. Recipes have been tested and retested and recommended to food laboratories and writers of food pages; stereotyped articles for the press have been distributed. And now a complete booklet for the baker's use of honey is ready for distribution, as already mentioned in this magazine.

Honey, this year, is in better demand. Let us not be optimists to the point where all credit is given to the Institute, but it surely deserves its share, and that is no mean share. The snowball has started rolling. It needs a little more power to keep it going as it grows heavier. Let's make it a giant snow man.

It was pleasing to see the uniform satisfaction of delegates at the convention, at what has been accomplished by the Institute. Bringing such enthusiasm to individual beekeepers is more difficult, but better sales for honey and a knowledge that publicity is being secured should help.

Advertising

Too many beekeepers are overlooking the value of a well placed sign in selling their honey to local customers. In these days of good roads and comfortable cars, folks like to go to the country to buy good things for the table. Roadside stands often do a thriving business in vegetables, fruits and other farm products.

The beekeeper who lives on a well traveled road will attract many customers by means of signs so placed as to be easily read by passing motorists. Many beekeepers are able to dispose of large quantities of honey in this manner. The sales will be much larger if honey is on sale at a convenient stand where it can be obtained with little delay.

A Good Example

A good example is set in Scotland for the exhibition of honey at fairs. The "Scottish Beekeeper" in its September number reports that, at the Highland Show, the number of entries for exhibits of honey were thirty-five in 1919, increasing gradually each year until they were one hundred and fifty in 1929. Our beekeepers should take example upon this. We must advertise our honey, and the very best way to advertise it is by exhibiting it at fairs.

L. T. Floyd

L. T. Floyd, Manitoba's provincial apiarist, recently notified of his appointment to the National Research Council, now investigating causes of spoilage of honey, has been honored by beekeepers of Alabama by an invitation to be the chief speaker at their annual convention being held at Montgomery Alabama, November 7-8.

Monkey See, Monkey Do

The present epidemic of gun-toting highwaymen can readily be traced to the suggestion of the gun play so commonly featured in present day movies. Such plays have stimulated the imagination of unstable minds and shown them how easy it is to take advantage of a peaceable citizen by means of menacing firearms. The pictures have failed to reveal what a fearful price the criminal eventually pays for his folly.

Likewise the wave of immorality among youngsters in high schools and colleges can readily be traced to the suggestive pictures everywhere produced. If we feed youth from the cesspools we must expect to breed a race of scavengers who live from filth. The movies are a wonderful educational agency and can readily be used to uplift or destroy the nation. Unfortunately the tendency has been toward encouragement of the low and vulgar. As a nation we are already reaping the fruits that we have planted.

More Bee Pasture

The annual report of the Illinois Agricultural Experiment Station contains many items of interest, but the thing of greatest importance to the beekeeper relates to sweet clover. The experiments with this plant indicate "where sweet clover grew without limestone, and the resulting growth was plowed under, the average yield of corn was increased 12.6 bushels per acre during the rotation period ending in 1928."

On the best, dark colored soils an even larger increase was shown. Corn is King in Illinois and Iowa, and once the farmers fully understand that the use of sweet clover in the crop rotation will insure such improvement in the succeeding crops the acreage will greatly increase. One of the most significant changes in agricultural practice in recent years has been the use of sweet clover over a very wide area. The writer has found great interest in this crop in nearly every state visited. In the cotton growing sections of the Southeast, farmers are learning its value; in the corn belt the acreage increases every year, and in the plains region the area planted to this crop is immense. It bids fair to become the most important legume for all America, from the Peace River to the Gulf Coast, and from the Atlantic to the Pacific.

Sweet clover is bringing a revolution in the beekeeping industry. More pasture enables the beekeeper to keep larger apiaries and produce larger crops. Bees are now kept where a few years ago their profitable management was impossible. Sweet clover promises to become the universal honey plant.

Honey and Ice Cream

The Illinois Experiment Station, reporting results of tests with the use of honey in ice cream, mentions the following conditions as peculiar: Honey is not satisfactory for sweetening vanilla ice cream, since the flavor of honey does not blend well with vanilla. It serves very well with most fruit ice creams.

There is a slight tendency for honey ice cream to be smoother than ice cream sweetened with sugar, but also a slight tendency to be somewhat crumbly.

Ice cream containing honey has a lower freezing point than ice cream sweetened with sugar, and must be stored at a lower temperature to be kept in firm condition. As would be expected, the ice cream containing honey melts more rapidly than when sweetened with sugar; it also freezes more slowly and is harder to whip to the proper consistency.

A knowledge of these facts is important to one who would succeed with honey in ice cream.

Advertising Your Honey

Traveling through the country, one sees, occasionally, a sign: "Honey for Sale." But traveling at twenty-five to thirty miles an hour, one has hardly time to see it before it is gone. What to do? Go back and buy honey? There is a lost opportunity.

If you wish to sell your honey, put up the sign a hundred yards or more to the right and to the left, besides having a sign at the house. "Honey for sale a hundred yards farther along." Then the sign at your home, near the apiary: "Honey for sale here, direct from the hives." Then the traveler, warned beforehand, will have slacked his speed and will stop without difficulty. Hundreds of beekeepers sell all their honey, right at home, by advertising in this manner. There is more demand for honey in this way than any other way, especially if the prospective consumer can see the apiary. If he stops and has the time to spare, you may induce him to visit your extracting room and explain to him what "extracted honey" is. He will then realize that it is not "extract of honey," as so many people imagine. The reporters help keep up the delusion. I have just read in a Sunday paper, "The Cleveland Plain Dealer," that Mr. Mapus sells "the extract variety." Do you suppose that reporter knew what "the extract variety" was? There is more ill-information about bees and honey than about any other of the farm interests.

J. C. Kremer, Specialist in Apiculture for Michigan, holding a beekeepers' meeting at a demonstration apiary.

A group of Berrien County fruit growers learning their A, B, C's in beekeeping

A Bee! A Bee! My Kingdom for a Bee

Meeting the Honeybee Requirements of a Fruit Growing State

By H. D. Hootman, Secretary Michigan State Horticultural Society

MICHIGAN fruit growers have taken an interest in beekeepers in recent years. The general understanding among fruit growers of the importance of insect life to their blossoming orchards in obtaining a satisfactory "set" has awakened their interest in beekeeping.

They regard the question of pollination not as a cure-all for the many ills of orcharding, but merely as one of the necessary steps in the whole problem of growing fruit. Some are learning to like and understand the honeybees, while others will probably always regard them as necessary evils.

The new plantings of commercial orchards in established fruit sections complicated the pollination problem and increased the need of honeybees. The vast amount of bloom in many sections was far in advance of the honeybee population in these same areas to adequately provide for pollination.

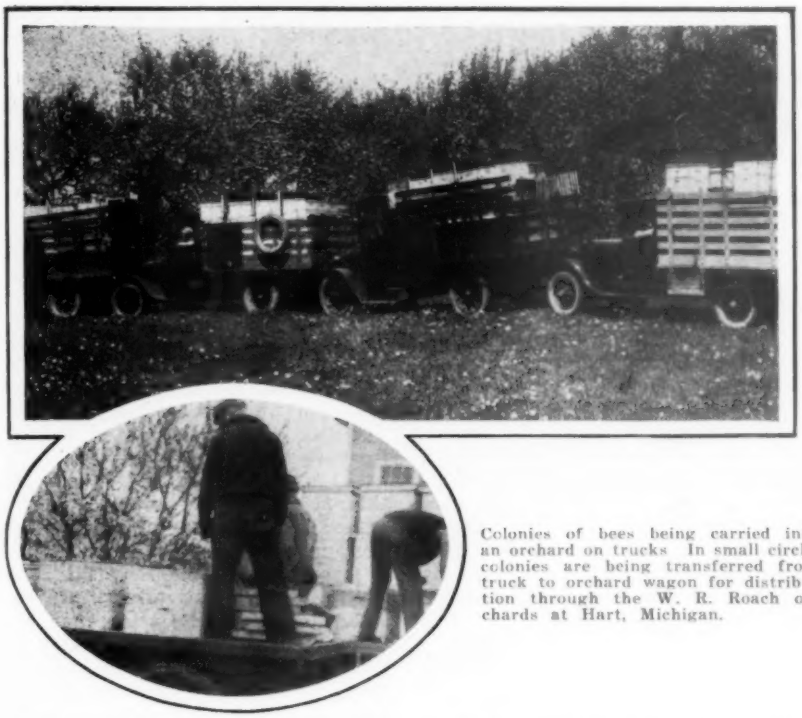
Several years ago a prominent grower boasted that he could predict the apple crop from any section by referring to the weather record for the blooming season. There is a lot of truth in his observation of short crops being associated with unfavorable weather at the blossom period. The Department of Agriculture crop reports for June often read something like this: The apple crop was seriously injured by cold and rainy weather during the blossoming season, which prevented pollination. Close observation has revealed that these unfavorable weather conditions that interfere with bee flight reappear each spring about as regular as sheet iron pigeons in a shooting gallery.

Bouquets placed near the trees several feet above the ground were visited more frequently by bees than when set on the ground.

In many of the fruit sections the growers have been convinced of the folly of wind pollination and the need of bees for their orchards as a result of the failure of crops to "set" on trees that were screened to exclude bees. The increase in heavy crops produced by other growers who took the hint suggested by these demonstrations and distributed colonies through their orchards at blossom time, has also had a marked influence in stimulating the brisk demand for bees. How to meet this demand has been the problem.

Meeting the Problem

In scores of cases the demand for bees for pollination purposes was met by the fruit growers themselves by renting bees for the period of bloom from experienced beekeepers in their communities. This method of providing for cross-pollination has always been encouraged. It is believed that it will be more satisfactory in most cases for large orchard operators, even though it may involve moving truckloads of bees seventy-five or eighty miles. The grower following this method generally has the use of strong colonies.



Colonies of bees being carried into an orchard on trucks. In small circle, colonies are being transferred from truck to orchard wagon for distribution through the W. R. Roach orchards at Hart, Michigan.

The demand for bees in 1929 had a tendency to raise the rental price in most sections. In a few places the consideration was as high as five dollars per colony, but in most cases it varied from two to three dollars.

In a number of cases where apple orchards were located in honey-producing areas the fruit grower, by furnishing a favorable location, has often been able to persuade a beekeeper in his community to locate a yard of bees near his orchard. In some cases, in addition to the location, the grower has paid the beekeeper one dollar per colony per year for this bee service. A few growers who failed to sweeten the deal for the beekeepers in this way were surprised to discover that the yard of bees, which they had planned on as helpmates in getting a "set" in their orchard, had suddenly been moved to another orchard.

The case of L. H. Wadsworth, who owns a 65-acre apple orchard in Clinton county, is typical of the increasing demand for bees. In 1927 he had no interest in them. In 1928 he rented twenty colonies and had them distributed in his orchards. In 1929 forty colonies were used. He is now fencing off a corner of his pasture adjoining the orchard, that a permanent bee yard may be located there. In addition to this yard, other colonies will be distributed through the orchard as in the past.

Beekeeper and Fruit Growers Make Contract

In the vicinity of Ludington, Michigan, thirty-seven members of the Mason County Horticultural Society entered into a contract with W. G. Stevens, of Custer, to have colonies of bees furnished them for pollination purposes during the blossoming season. The business of having the contract signed by the various growers, the collection of the rental charge and the transportation of the bees to and from the orchards was ably taken care of by the secretary-treasurer of the society, Wesley S. Hawley. The rental charge for the use of the bees was three dollars for each colony. The growers further agreed among themselves that they would pay twenty-five cents per colony each way to the grower who furnished the transportation.

Before any colonies were moved from their permanent location at Custer they were inspected by a state bee inspector to make sure that they were in reasonably good spring condition, but more particularly to make sure that there was no foulbrood present. Scouting was also done in the fruit section in which the colonies were to be moved and any diseased colonies found destroyed by fire according to Michigan law.

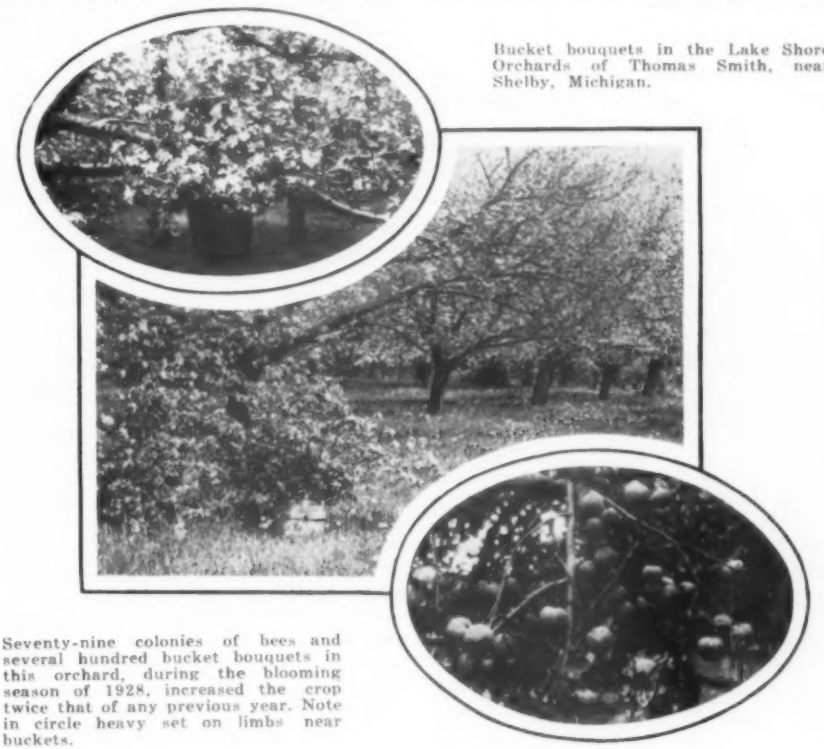
The contract specified that in case colonies were stolen while in the possession of the gruit grower the beekeeper agreed to accept ten dollars for each swarm stolen in addition to the rental charge in settlement. It also provided that in case of any damage to either bees or equipment in transportation or while in the possession of the fruit grower, the amount of the damage should be determined by a named committee and settlement made accordingly.

The contract also specified that the rented colonies should not be moved from the locations first given in the respective orchards.

The owner of the bees accompanied each load in transit for the purpose of helping to look after them, and also gave the bees such care and attention as he deemed necessary while the colonies were distributed in the orchards.

Results

What were the results of this whole undertaking? With one or two exceptions, all of the thirty-seven growers were more than satisfied. One grower said, "The main result is that



Bucket bouquets in the Lake Shore Orchards of Thomas Smith, near Shelby, Michigan.

Seventy-nine colonies of bees and several hundred bucket bouquets in this orchard, during the blooming season of 1928, increased the crop twice that of any previous year. Note in circle heavy set on limbs near buckets.

right here in Summit and Riverton townships we have the best pear crop in the state." Another reported a crop of six hundred bushels of Hubbardston apples from a small orchard, in which he had distributed colonies, that formerly had never produced over one hundred bushels.

Another wrote: "We are now very busily engaged in harvesting our crop of Bartlett pears. Due to 'busy bees,' we have 'bending branches.,* with a yield of almost five hundred bushels in our small orchard."

Fruit Growers Organize a Beekeepers' Association

In Oceana county an important group of fruit growers organized a beekeepers' association with the idea of providing bees for use in their orchards. This group proposed to buy several hundred colonies of bees, buy a truck, and hire an experienced bee man to care for them. They realized that the chance of having a surplus of honey would be very slight if the colonies remained in the fruit section after the bloom was gone. A sandy type of soil prevails in this section and few honey plants are to be found.

It was first thought that a bee service could be maintained for an investment of about ten dollars per colony, but closer investigation revealed that such a plan would come nearer to costing the growers twenty-five or thirty dollars for each colony. The plan was abandoned, but the association accomplished much good by their influence in obtaining money from their county board of supervisors to match dollar for dollar the funds available from the state for foulbrood eradication work.

In 1928 over 15 per cent, or 382 diseased colonies were found in their county, compared with 1929, when only twelve diseased colonies were found when the county was rechecked.

After steps had been taken to meet the bee disease situation, the growers were ready to meet the pollination problems in their orchards. Several large operators had truck loads of bees from other counties distributed in their orchards. Many smaller growers bought colonies and engaged in the beekeeping business. A few have started with package bees. Through their county agricultural agent they arranged to have two demonstration apiaries located in their midst. Here, each month throughout the working season, they met with J. C. Kremer, specialist in beekeeping from Michigan State College, and received timely instruction in caring for their bees.

It has been well said that the natural distribution of plants is determined more often by the insects that pollinate them, rather than by the climatic requirements of the plants themselves. An interesting case of the inter-dependence of plant and animal life is here related:

Darwin, in his "Origin of Species," pointed out that the prosperity of England, due to the production of red clover, was made possible by the domestication of the house cat. It is very hard to see any relation between the domestication of the house cat and the prosperity of a nation until we realize that the ordinary red clover is pollinated by the bumblebee, the proboscis of the honeybee not being long enough to reach to the bottom of the nectary. Mice prey upon and destroy the bumblebees' nests. Consequently, near cities and villages where cats abound we have few mice and lots of bumblebees.

At this point in the discussion Huxley made the suggestion that, as old maids were fond of cats and generally kept from one to several around, we should chivalrously admit that England's wealth and prosperity was due, not so much to the house cats, but to her old maids.

* This is a reference to a bulletin on pollination, "Busy Bees Bring Bending Branches," by H. D. Hootman and G. H. Cale, published by the American Bee Journal. It is a complete reference on the subject. Copies sent on request.

Beekeeping Suggested by Red Cross in Rehabilitation Program

Disasters impose an economic burden on any community, but in the Red Cross there is a trained intelligence at hand, ready to respond in cyclone, tornado, hurricane, storm, flood, fire, building collapse, or wreck. It maintains a year-round organization, fully prepared and equipped to meet all calls for assistance. While from the standpoint of the honeybee it may be feasible to reestablish a home every season or two, the process of putting a family of human beings back on a normal plane of living after their resources have been destroyed is complicated. However, it is carried through successfully every year, many thousands of cases, by the Red Cross.

The Red Cross does not consider its work complete until it has dealt with the human problems and has insured as far as it can that every sufferer is returned to his former condition. In a single disaster there may be five or six thousand families requiring rehabilitation, which, if not given them, would leave the family dependent on their neighbors for the bare necessities of life.

Each family registered by the Red Cross has its immediate needs met on the spot. Generally food, shelter, clothing and medical care are given. Later the Red Cross representative, dealing with the family as an individual group, talks over the family's plans for recovery and works out a suitable one, recommending such further Red Cross help as will enable the family to become self-supporting.

In this way the individual family is first helped over the emergencies, then alleviated along permanent lines so that it will not be a liability.

Almost every possible means of livelihood has been undertaken in rural communities where disaster has taken place in an effort to bring individuals back to a state of economic stability. Farm implements have been furnished, seeds provided, houses rebuilt, farm stock obtained. There are instances on record where beekeepers have been aided in reestablishing their colonies, and also where this industry has been suggested to someone who seems suited for the business. The technical knowledge necessary, of course, is carefully considered before equipment is furnished. Weather, climate, and the presence of a sufficient amount of nectar-producing plants, within range of the apiary, are taken into consideration. On the beekeeper himself devolves the responsibility for the condition of the bees and their care, to bring about favorable results.

It is impressed on anyone entering beekeeping that financial profit means hard work just at the right time. Few lines of work require more study and manipulation to secure success.

Many of these beekeepers are able to dispose of their entire honey crop in local markets, sometimes creating quite a demand.

Far-sighted, efficient and continuing work characterizes all relief service undertaken by the Red Cross. All of this service is made possible through nation-wide response to membership at the time of the annual enrollment. This invitation to join will be extended this year between November 11 and 28. Do your bit to help.

More About Our October Cover

Such a cute little dickens, and nobody said a word except Daddy Reed. He sent us a nice letter, of course. All of you saw the little boy in his overalls and straw hat.

Under the contents, on page 479, we have extended an invitation to any of our readers who think they have a little one with a picture as good as that one of Clair Reed's to send it right on. We'll be glad to get it.

For some time among ourselves we discussed whether we would put Clair on the cover, and finally decided that, as practically all beekeepers were tenderly inclined toward children, because of one in their own family, there would be considerable interest in Clair. We are now inclined to think that nearly all of our readers are either old bachelors or old maids.

Flags of the nations decked both sides of the path leading to the meeting place

The Berlin Conference of the Apis Club

By W. J. Nolan

THE Apis Club Conference, held in Berlin from August 9 to 12, was a notable event in beekeeping history. It not only marked the most important beekeeping meeting yet held, but it was the first really international meeting of beekeepers ever held in Germany. The latter country has on numerous occasions entertained associations of German-speaking beekeepers from various countries, but at no time before has it entertained an international association of beekeepers not joined together by language ties. As far as that is concerned, the last part of the foregoing remark still applies to the United States.

The Berlin meeting outdid even the second International Apicultural Congress, held at Paris in 1900. At that meeting, according to l'Apiculteur for 1900, there were one hundred and fifty in attendance, representing fourteen countries and provinces. Mr. C. P. Dadant attended from the United States. At the Berlin meeting there were one hundred and seventy-five registered in attendance, from twenty-one individual countries. In addition, there were others who did not register. About a dozen languages were represented, but all could understand either English, French, or German—the latter, of course, being the principal language used. With one exception, those from France who gave papers spoke in German. The same applies to England. Papers from all the other countries were given in German, with the exception of one in Russian.

Probably the banner beekeeping meeting for attendance was the twenty-fourth assembly of the Association of Beekeepers from Germany and Austria, held at Prague in 1879. According to the Bienen-Zeitung for that year, six hundred and five individuals registered in attendance, but enough more not registered were in attendance to bring the total over seventeen hundred. Mr. Thomas G. Newman, at that time editor of The American Bee Journal, was in attendance from this country.

Those in attendance had a good opportunity to mix and get acquainted and to see odd things.

The outstanding beekeeping figures in attendance from Europe at the Prague meeting were: Dzierzon, v. Berlepsch, Andreas Schmid, editor of the Bienen-Zeitung, G. Dathe, and Butlerov, of Russia, who is reported to have been the first to bring the Caucasian honeybee to the attention of beekeepers in his own country and in the rest of Europe. Among the more outstanding European figures at the Paris meeting, according to l-Apiculteur for 1900, were: Bonnier, Sevalle, Hommell, and Dufour, all of France; Koshevnikov of Russia, Kunnen of Luxembourg, Sartori of Italy, and Wathelet of Belgium.

The Berlin meeting presented a whole array of Europeans known even outside their own countries for their work and interest in the honeybee. Among these were: Miss Betts, Mrs. Prell (Dr. Koehler before her marriage), Armbruster, Baldensperger, Becker, Bischoff, Borchert, Evenius, Ewert, Freudenstein, Himmer, Illingsworth, Jaubert, Koch, Leuenberger, Morgenthaler, Morland, Nachtsheim, Rosch, Soudek, Toumanoff, and Vitzthum. To tell what each of these has accomplished would in some instances take much more space than is available for this article. In addition to the foregoing there were many others who have rendered important service in their own countries. Among a few of these may be mentioned: Reverend Girtler of Meran, Italy, Reverend Adamec of Czechoslovakia, Okorn of Jugoslavia, Grunup of Latvia, and Rasmussen of Denmark. Although no Russian research worker in beekeeping was present, the Soviet Government sent a special representative in the person of Mr. Neschunoff. Any list of those in attendance would be incomplete without the name of Miss Nora Baldensperger, who rendered invaluable service in translating the gist of each paper read, into English, French, or German, as occasion demanded.

It must not be thought that the Conference drew only research workers. The writer met practical beekeepers from Switzerland, France, Germany, and elsewhere. In fact the first person I met who had come for the Conference was a practical beekeeper from Switzerland. I had arrived in Berlin at 6 o'clock on the morning of the first day of the meet-

A group of those in attendance at the Berlin Conference of the Apis Club

ings. Not knowing the location of Dahlem, I bought a map of Berlin at the station, but Dahlem was not shown on it. I then inquired the way and was directed to take a street car from the Potsdamer Platz. Arriving at this Platz, I walked up to a policeman to make certain that I had been given the correct information. I found him engaged in conversation in French with someone whom I overheard asking the way to Dahlem. I then noticed that the man wore a stick-pin in the shape of a honeybee. I immediately asked if he was attending the meeting of the Apis Club. I found him to be a Swiss beekeeper, named M. Perrenoud. M. Chaneaux, an extensive French beekeeper, was also present. He is planning a visit to the United States in the near future to study our beekeeping methods first-hand. Mr. Baldensperger, a man whose lifework has been in the apiary, a past president of the Apis Club, and the best known internationally of all practical beekeepers, furnishes another illustration.

The meetings were held at the Institut fur Bienenkunde, a part of the excellent agricultural station which the German Government maintains in Dahlem, a part of greater Berlin. Doctor Armbruster, president of the Apis Club during the past year, is in charge of this Institute. The meeting place was the court of the quadrangle formed by the building, or rather series of low buildings which house the activities of the Institute. The buildings really form only three sides of the quadrangle, the fourth being formed by a roofed passage between the ends of the two wings. A canvas was available to spread overhead in case of inclement weather, but was not needed, with the exception of a few hours during the opening sessions. In the structure are rooms for offices and laboratory work, as well as a lecture room with charts, models, and means for using movies or lantern slides. Among items of interest in this lecture room was a large-sized model of a brood frame showing cells with eggs, sealed brood, and the like, but each cell was several inches across. On one part of the grounds surrounding the the buildings a garden of various nectar-producing plants is maintained, and, in addition, scattered all over the property, are hives from all parts of the world, which are evidence of a special interest on the part of Doctor Armbruster. In this connection it should be mentioned that each person on registering was given, besides literature enabling the stranger to get around in Berlin better, a souvenir copy of one of Doctor Armbruster's latest works, that dealing with the history of the hive in Italy. This was a reprint from the journal, Archiv fur Bienenkunde, which he edits. At his Institute, Doctor Armbruster has also made provision for studying solitary bees.

The meeting place was appropriately decorated with a large Apis Club banner, numerous pennants, and the like. Over the gateway from the street were, of course, the German and Prussian flags. Lining the walk leading from the gate to the buildings were the flags of various nations. The first on the left was that of the U. S. A.

The meetings on the first day began at 9 o'clock in the morning and, with an interruption of an hour and one-half for the mid-day meal, were

On a visit to a mating station. Many practical phases of beekeeping were considered at this conference

continued until 7:30 in the evening. After the close many of those from out of Berlin assembled for their evening meal at a cafe in the vicinity. The noonday meal was furnished, but the writer does not know to whom thanks are due.

A few words of greeting by Doctor Armbruster opened the Conference. The writer, as the one having come the longest distance of any to attend the gathering, had been asked by Doctor Armbruster to sit during the opening session on what corresponded to the platform. Others who sat here were: Miss Betts, secretary of the club; Mr. Baldensperger and Doctor Morgenthaler, both past presidents, and Doctor Gerriets, a representative of the Prussian Ministry of Agriculture.

After Doctor Armbruster had given his presidential welcome to those present, Mr. Baldensperger gave an address fitting for the occasion concerning the late Captain James Morgan, secretary of the Apis Club at his death. Mr. Baldensperger at this time also mentioned Doctor Maassen of Germany, Doctor Rennie of Scotland, and the German queen breeder, Wilhelm Wankler, all three of whom had died since the 1929 Conference of the Apis Club in Switzerland. At the conclusion of Mr. Baldensperger's talk a memorial wreath was unveiled. This marked the end of the first, or opening session, but the second session was begun immediately, with Doctor Morgenthaler, of Switzerland, presiding.

The second session marked the beginning of the presentation of papers, some thirty in all being given before the end of the Conference. These in the main dealt with disease, especially the Isle of Wight, or acarine disease. In addition there were papers on beekeeping in Russia, in Italy, in Palestine, in England, in the heather region of Germany, in Sweden, and in Latvia. The talks on the last two countries were accompanied by movie films. Reverend Girtler spoke of colony averages of one hundred to two hundred pounds in some localities in his country. There were also papers on the distance queen-bees fly in mating, on bee laws in Germany, on the use of bee poison in medical cases, on the newer analysis of honey, and on other topics of interest.

No attempt will be made here to give a resume of the papers presented, since these will undoubtedly appear in the official organ of the Apis Club, the Bee World. Suffice to say that on the first day Doctor Gerriets gave a welcome to the Conference on behalf of his ministry and sketched the aid being given to beekeeping by the Government. A paper by Doctor Borchert told of having examined over forty thousand indi-

(Continued to page 568)

A Glance Through the South

By Jes Dalton

Cooperative Honey Marketing

Despite peculiar handicaps, Louisiana cooperative marketing of honey is forging ahead. Last year being the first one, some unavoidable mistakes were made and unlooked-for difficulties developed. One which caused more trouble than others is the time it takes to get cash returns on honey where there is no organization with sufficient capital to make advances. Most beekeepers have difficulty in understanding this.

A short crop in general naturally advanced the price, and, of course, the removal of the complete surplus from the state, cooperatively, helps this along greatly.

Even these difficulties are not holding back beekeepers from pushing the venture, however, and again it begins to attract attention from American honey buyers and exporters. Once it is well established and there is a good, reliable organization functioning in the central part of the South, which can furnish good, clean honey in tons or carloads at all times, the demand will grow. Beekeepers seem to realize it by giving it their loyal support even though somewhat handicapped.

* * *

Southern States Beekeepers' Conference—Dates and Problems

The dates for the Southern States Beekeepers' Conference are definitely set for February 26, 27, and 28. Headquarters and program will be given out later.

One unfinished problem is that of trying to have the southern states hold their summer meetings in succession. This has always been worth while, but hard to bring about. It has many advantages if successfully handled. This year Texas, Louisiana, and Florida held their meetings in succession, cooperating with their State College general summer meeting.

After several years of work, I now believe that it would be better to try to get cooperation through extension departments of the colleges, rather than through beekeeping organizations alone. The Southern Agricultural Workers' meeting, in Jackson, Mississippi, this winter, about the time of the conference, is a good place to get action along this line. It is too bad that these two meetings were not held together, and this should be arranged next year.

* * *

Bee Disease Agitation

There is constant bee disease agitation and publicity going on in the papers all the time. They have been full of particularly vitriolic disease discussion for the past few months, with a promise of more to come.

With the peculiar emphasis on this question, it is not likely to escape notice abroad. They know that the American states are declaring openly that disease is highly dangerous, that colonies of bees or bees on combs cannot cross certain lines when coming from free territory, with clean health certificates attached to them; that disease is so highly dangerous, this precaution must be taken.

Other sections declare that disease is so dangerous that every diseased colony must be burned and the crop destroyed. Other states proclaim by law that no diseased honey shall, under any circumstances, cross state lines, since it endangers the industry in the state.

It is not only natural for this to be noticed abroad, especially in Germany and Austria, where only ten years ago the farmers were defeated in war by these same Americans and who today see their market depressed by American honey. The diastase ruling in Germany is only a sample of what we can expect.

Most of the southern states are comparatively free from disease and are producing clean honey. It might be well for us to forestall such action as this in advance and not get caught like some of us did in the sectional embargoes on bee shipments.

It would be proper to state that every ounce of honey offered for sale by the Louisiana cooperative is produced in disease-free apiaries, inspected before the honey is taken off, and that the honey is also inspected after production, before it is accepted by the cooperative.

With this kind of an organization, we must not be caught in a disease discussion largely promoted by parties who admit that they have disease in large amounts and who are utterly opposed to burning. It will be well for the states in the Southern Conference who are building up cooperative marketing organizations to look into this situation carefully and take some forward step to forestall the move that it is inviting.

* * *

Southern Bee Culture Field Station Activities

Dr. Everett Oertell and Mrs. Oertell have been enjoying their vacation on a trip through Arkansas and on into Kansas. They report pleasant visits with beekeepers in those sections.

(Continued on page 568)

Provision for pollination is a part of modern orchard planting. Varieties alternate every four rows in the Stark orchards. The bees have a chance to do their best, as results show.

How the World's Best Known Fruit Growers Use Bees for Pollination

In the Orchards of the Stark Brothers, at Louisiana, Missouri, Bees Mean Fruit

By Frank C. Pellett

So much has been written concerning the importance of bees in the orchards of late that there is no longer any need of offering evidence of the service which they render in the pollination of the blossoms of many kinds of fruit. No longer do well informed fruit growers question the value of the bees; the thing they want to know is, how many bees are necessary for the conditions under which the service must be rendered, how the bees may be secured and how they should be managed. Professor Hootman's story of Michigan activities proves that.

As long as the old-time method of planting many varieties together prevailed, there was little trouble from failure of cross-pollination. The planting of single varieties in large blocks is a development of recent years. Since the commercial orchard, managed by a specialist who has no other business, has replaced the family orchard of a dozen or twenty varieties on every farm, new problems have arisen. Among them all none has been more serious than the problem of securing proper pollination of the flowers. Nowadays it is common to find whole neighborhoods given over to fruit growing, with single orchards of hundreds of acres in extent. When thousands of trees are in bloom at the same time, each tree with many thousands of individual flowers, large numbers of bees are necessary to secure proper fertilization. In the small orchard there were plenty of wild bees to carry the pollen from one tree to another. In the large one, some special care is necessary to insure bees enough and at the right time to secure the desired result.

Early in 1929 the American Bee Journal published a booklet by H. D. Hootman and G. H. Cale, which summarized the experiments which have been conducted in various localities with cross-pollination. Although these experiments were carried on in widely separated localities, the results were alike in that all showed the need of some agency to carry the pollen from one variety of fruit to another of suitable affinity. We have only recently come to understand that certain varieties are intersterile and that the presence of more than one kind does not insure proper pollination even though the bees be present. First, we must have varieties which are suited to each other, and then the bees will do the rest if weather conditions are favorable.

We Visit the Orchard

In order to learn how orchardists are handling this problem, L. C. Dadant and the writer visited the Stark Brothers' orchards at Louisiana, Missouri, early in April, when the trees were just coming into bloom. Paul and Lloyd Stark, members of the well known nursery company, have a beautiful young orchard of nearly three hundred acres a few miles from the town. D. E. Lewis, formerly Professor of Horticulture at the Kansas College of Agriculture, is the manager. Several hours were spent in the orchard in an effort to understand fully their plan of orchard management, especially as it concerns the cross-pollination of such large blocks of trees.

The Starks come of a family that has followed the nursery and orchard business for generations. Likewise, Mr. Lewis has spent the greater part of his life in the business, so we felt that here would be a good place to learn the best up-to-date management for any detail of the fruit growing business.

A stationary spraying outfit is used, with pipelines throughout the orchard.

Mr. Lewis had several interesting experiences to tell from his connection with other orchard enterprises. Some years ago he leased an orchard in Kansas that had sixty acres of Jonathan. In the entire block there were only four trees of other varieties, which had been included by mistake. These were three Ben Davis and one seedling tree. Except for the immediate vicinity of these odd varieties, the orchard had never borne but one full crop. The fact that Jonathan trees close to these others did yield fruit indicated the nature of the trouble. When the orchard was coming into bloom, Lewis brought branches of Missouri Pippin, Grimes Golden, and Black Ben Davis from a distance and used them for bouquets in the orchard. These branches were well filled with blossoms at similar stage and they were set in holes in the ground which were filled with water to keep the bloom fresh as long as possible. Bees were then brought in and distributed through the orchard. The result was a big crop of fruit throughout the entire planting. This and similar experiences of his own, together with like results secured by others long ago, convinced Lewis of the need of bees in the orchard.

No longer do well informed fruit men plant orchards in solid blocks of one variety. Instead, rows of other kinds are alternated at frequent intervals to secure cross-pollination. The Stark orchards are still young. The first trees planted were only nine years set. The youngest block which we visited was four-year-old Starking, full of bloom. The bees were so distributed through the orchard as to insure some visitors to every tree. The sun was shining, but the air was a bit chilly. Fortunately, the bees were flying freely and the indications were that, barring frost, that orchard would set a good crop of fruit.

We found it hard to estimate the number of bees in single trees, as they moved about in such a way that one might count the same bee several times while missing others altogether. As nearly as we could tell, there were about a dozen bees working in each apple tree. This number should in-

Manager Lewis and L. C. Dadant counting the bees on the blossoms.

Groups of about five colonies each are located at convenient places in the orchards.

sure good cross-pollination, with a few hours of favoring weather. Mr. Lewis watched a single bee for a period of twenty minutes and found that it visited seventy-five flowers in trees of two different varieties. This is exactly what the arrangement of the orchard was designed to accomplish, for, unless the bees pass from one variety to another, cross-pollination fails.

Arrangement of Varieties

While the greater part of the orchard is composed of the Golden Delicious and Starking, there is a total of thirteen of the leading commercial varieties growing there. The orchard is planted on a triangle system. The trees are only about fifteen feet apart now, but when the fillers are removed the permanent trees will stand at a distance of about thirty-three feet each way. Only four permanent rows of one variety are set together. These are alternated with a similar number of rows of another variety. This should be sufficient to insure pollination even under unfavorable weather conditions if there are plenty of bees present. Between each two rows of permanent trees is a row of fillers, with every other tree another variety. This will give a fine opportunity to compare results in cross-pollination with a large number of varieties and to ascertain whether equally good results are obtained after fillers are removed.

Special care is given to spraying to insure the safety of the bees. A stationary spray outfit is installed, with pipe lines through the orchard. A hose 150 feet in length is used and as one block of trees is finished the men move to another plug, and thus they cover the entire orchard. It is estimated this outfit saves about 40 per cent of the labor cost in spraying. With so many varieties, which overlap more or less in their period of bloom, much care is necessary to apply the poison when it will kill the pests and at the same time avoid killing the bees.

With so many varieties interplanted, it is not necessary to scatter the bees as much as where bouquets are used in large blocks of a single variety. Mr. Lewis likes to put about five colonies of bees together in convenient locations, and feels that they will fly over an area of perhaps a quarter of a mile with as good effect as when the hives are evenly distributed through the orchard. At present he is using one hundred colonies of bees in three hundred acres of orchard, which, because of the number of filler trees included, has several times as many trees as when fillers are not used.

Although a few bees are rented from nearby beekeepers, the most of them are owned by the orchardists and remain on the place throughout the year. Mr. Lewis indicated that they expected to use a larger number of bees in future to guard against seasons of extremely unfavorable weather, when there might be but a few hours when the bees could fly during the blooming period. At such times many more bees are needed than when the weather permits the bees to work freely during several days of blossoming.

The Result

A second visit to the orchard in September furnished a pleasing experience. In a season of short crop, when some large orchards have few apples to sell, the Starks had 18,000 bushels of Golden Delicious, besides a smaller crop of other varieties. These apples brought a fancy price. The selects were packed in special cartons and sold at five dollars per box of about seventy-five apples. Other grades were priced according to quality. The Starks are outstanding orchardists who regard the bees as necessary to crop insurance.

Success With Water Formalin

By W. A. Gridley

I have treated over three thousand combs with a 20 per cent solution of water formalin. I uncap every cell, or try to, then I soak the combs forty-eight hours in water, throwing the water out afterwards with the honey extractor. While they are wet, I put them into the water and formaldehyde for forty-eight hours, also, then throw the solution out with the extractor and place them ten in a ten-frame hive, stacking the hives seven high on a solid bottom, and put a cover that fits well on them for twenty-four hours. They will still be wet. Then I hang them in the open to dry. I never wash or rinse them and do not give them to the bees for at least two weeks. I do not use any soap.

In the above I speak of only those combs that have had brood in them (brood combs). The white combs that have contained honey only I soak in water twenty-four hours, then in the solution twenty-four hours and pile them up just as I do the brood combs.

I am sure that combs treated in this way are absolutely safe. My solution costs me about 45 cents per gallon. I do not think it will pay to use a more expensive solution. Also I think that a solution of 10 per cent formaldehyde would do the work if the combs were left in the stack for forty-eight hours after treatment. They would stay wet that long, or ninety-six hours altogether, including the time they remained in the solution, and treatment would go on for a few hours even after they were put out to dry.

Comb Honey Production Calls for Specialists

By Nicholas Zimmer, Jr.

The present tendency in beekeeping is decidedly toward the production of extracted honey instead of comb honey. The recent expansion in commercial beekeeping since the passage of the pure food law is a large factor in bringing about this change. Since it is no longer necessary to market honey in the combs to convince the consumer of its purity, comb honey must now appeal to him largely because of its finer appearance.

Well-filled sections of comb honey with delicate white comb and perfect cappings are obtainable only during a rapid honeyflow of sufficient duration to insure their completion. The production of comb honey, the appearance of which is sufficient to justify its extra cost, requires a combination of conditions that are peculiar to rather limited areas, outside of which the beekeeper will find it decidedly advantageous to produce extracted honey.

Comb honey should not be attempted in localities where the honeyflow is slow or intermittent, where the character of the honey is such that it granulates quickly in the comb while it is on the market, where the honey is dark or "off color," or where honeys from various sources are mixed if these different sources produce honey of different color or flavor. Local market conditions in some instances may, of course, be such as to make it seem advisable to produce comb honey in limited quantities in a locality that is not well suited to comb honey production, but the beekeeper who expects to produce comb honey for the general market should first be sure that his is a comb honey locality.

While the professional beekeeper is thus curtailing the production of different grades of comb honey, bee diseases are rapidly eliminating the careless producers. From the present indications, therefore, it would seem certain that there must be a gradual elimination from the markets of all inferior grades of comb honey. This should mark a new era in the production of the best grades of comb honey in the localities that are peculiarly adapted to comb honey production. The beekeeper who is thus favorably located will do well to consider the possibilities of future conditions for a fancy grade of comb honey.

It Pays to Separate Good Honey from Honeydew

By George W. Pillman

FLOWS from honeydew are of such frequent occurrence in the writer's location, some thirty miles from St. Louis, as sometimes to constitute a problem pertaining to the ways and means of handling them to the best advantage. Sometimes we happily escape flows from the mentioned source for a period of three or four years, when again the bees may bring some honeydew to the hives as often as two years in succession. We would, on the whole, prefer a better grade of honey, but do not doubt that other beekeepers located in wooded sections of central states experience flows from honeydew as often as we do here. Hence, what we seek to say about the matter may be of interest to others so located.

When honeydew is prevalent in the nearby woods, the bees sometimes start working on it early in the spring and continue to do so until white clover is well advanced in bloom. Or, again, it may be the other way around—i. e., the bees may store a crop of clover-basswood honey and, without letup in their honey gathering, proceed to pile a lot of honeydew on top of it before all of the white honey is ripe enough to take from the hives. Then our honey gatherers may bring in honeydew and nectar from floral sources at one and the same time, and in this case, of course, there is no way of keeping one kind of honey separate from the other.

In instances when the bees commence piling honeydew on top of white honey, with no letup between the flows, the procedure is often a puzzling problem, for there exists at such times a considerable amount of watery nectar in the combs; many of the combs in the hives at the time of the merging of the flows may be only one-third or one-half capped over, with the uncapped part of the combs containing varying percentages of thin honey, which might make the extraction of honey at this stage a questionable procedure.

So the problem presented at the time of a sudden change from white honey to honeydew is in judging the degree of ripeness of the white honey on the hives. On several occasions we have asked ourselves: Is it ripe enough to take from the hives and extract? Or is it not? Should we take the white honey from the hives notwithstanding its general lack of ripeness, or leave it with the bees to be mixed with honeydew, which may find a market for about one-half the price of good table honey? What do other beekeepers do in a case of this kind? Why has there been nothing writen on how to handle such situations? Is it because beekeepers of any experience are supposed to have sense enough to know how to handle such problems without asking any questions?

Since I began keeping bees, my experiences with honeydew flows have been so many and varied that I could find enough material in them to write a book on the subject were I qualified to do so. But as the seeming need of some light on this subject may be supplied in a few paragraphs, we shall, with the consent of the editor, be pleased to review a few of our experiences with honeydew, as follows:

1. Some six or seven years ago, my bees brought to the hives several thousand pounds of clover-basswood honey. As it seemed at the time that the flow from this source could not continue over a week longer, I extracted several combs of this honey to see what it looked like and to note its degree of ripeness. To all appearance it seemed almost ripe enough to extract, despite the fact that the bees were still bringing honey to the hives. In viewing a sample of this honey in pound glass after extracting the several combs, I noticed that it was lemon-gold in color, very pleasing to the eye, and as fine of flavor as any honey I ever tasted. But as only a portion of the honey on the hives was capped over, and the bee books said "the longer on the hives the better for the honey," I concluded to leave it on the hives until the ending of the flow.

As I had a few jobs to do about the place besides looking after the bees, and as they seemed busy as ever, a week passed and from the roar of their millions of vibrating wings, I deduced they must be still bringing in an immense amount of honey from the clover-basswood source.

I concluded I had better look into a few of the hives to see what they were doing. I looked. And in taking a newly drawn comb bulged with honey from the hive, I held it up to the sunlight that I might enjoy a view of the lemon-gold nectar of the clover-basswood flow. But presto! what was my disappointment to note that the lemon-gold had turned to a druggy brown during the week that I failed to look into the hives! And I realized that the fine crop of honey I had waited three years for had been ruined by the bees piling honeydew on top of it. So ends experience number one.

2. About three years after the calamity just mentioned, I had another experience with honeydew in which similar conditions prevailed. I had a fine crop of white clover on the hives in various stages of ripeness. Most of the combs were perhaps from one-third to one-half capped over, and I deduced at the time that the flow from white clover would not last more than another week. In watching the newly drawn combs of this particular honeyflow, I one day noticed that the bees were beginning to store a dark, cloudy honey in one of the combs, and at once knew that we were in for a flow from honeydew. But here was a problem: Being aware of the fact that a considerable percentage of the honey on the hives was not as ripe as it should be, the question was, how manage the situation to the best advantage?

Well, as I was not at all pleased at the prospect of having this second crop of honey ruined in color, flavor and price by the addition of honeydew, I concluded to take the honey from the hives and extract the ripest of it. I at once took the honey from the hives and down to the honey house. Here I tested all the partly capped combs for ripeness by shaking them cell side down and whiffing them in the air. And all of those combs from which thin honey rained freely we placed in one pile of supers; and those combs from which little or no honey could be shaken we placed in another pile, or piles. We thought this shaking and whiffing test for ripeness a fairly safe test, and when we got all the honey sorted out to our satisfaction we proceeded to extract only the ripest part of it. Then we put the combs containing watery honey, along with the empty combs, back on the hives for the bees to store their crop of honeydew in. When we got the situation straightened out we heated this crop of honey in open-mouthed containers to 145 degrees to thicken it up a little; and in so proceeding we saved about 95 per cent of that crop of good white honey from being mixed with honeydew. And we think we learned and gained something in experience number two.

3. In the season of 1928 just passed, we had another experience with honeydew; but this time the bees began to bring it to the hives early in the spring and continued to do so up until about the first week in June. Here I was again watching

the newly drawn combs; for as the blossoming heads of white clover were getting more plentiful with the advance of the season, I figured that the bees might lay off the honeydew and go to working on white clover at any time.

And my guess turned out to be correct. Noticing that the bees were now storing white nectar in the cream-colored cells of the newly drawn combs, I at once took the crop of honeydew from off the hives notwithstanding its degree of ripeness, and proceeded with the testing, sorting, and extracting. And the only difference I made in handling this crop was that I extracted the thick part of the honeydew in one large tank, some not so ripe in a second tank, and all the watery part of the honeydew in a third vessel. And after thus extracting the honey out of all the combs, I put them back on the hives for the bees to store their clover honey in.

The result obtained in thus proceeding was about three thousand pounds of honeydew thick enough to keep from fermenting and about ten gallons of watery honeydew, which was a very small loss in consideration of what I saved; for, from the flow from white clover and fall honey which followed, I obtained about three thousand pounds of fine table honey free from honeydew.

While we do not know how other beekeepers handle like situations, we always try to keep the good table honey that the bees bring to the hives in seasons of honeydew separate from honeydew, when possible. However, there may be instances in the merging of flows of honeydew and floral honey in which the honey from floral sources would be altogether too thin to extract. And in this case, of course, the beekeeper can do nothing but leave such honey on the hives to be mixed with honeydew; for we all know that thin honey prone to ferment is not a very salable article. Hence it is up to the beekeeper to use some judgment and every caution in endeavoring to keep separate the honey from different flows as mentioned.

Interesting Bits from Early Wisconsin Beekeeping

By N. E. France

MR. D. D. DANNIHER, one of the early beekeepers of Madison, made a straw hive the day that Wisconsin was declared a state, in May, 1848. He kept bees in this hive for many years, until the Chicago World's Fair, when he intrusted it to my care. I have had it on display at the Wisconsin State Fair on several occasions, also at several other state and county fairs, and at the fiftieth anniversary meeting of the Wisconsin State Beekeepers I presented this straw hive and several group pictures of national beekeepers' meetings to the Miller Memorial Library at Madison.

At one of our early meetings in Madison but six members were present, and I asked Mr. D. D. Danniher why so few were there. His quick Irish reply was, "No honey, no money; no money, no go."

Rev. L. L. Langstroth patented a movable comb hive on October 5, 1852, and early the next year published his book, "The Hive and Honeybee." This marks a great change from straw hives or boxes of cross combs to movable combs and at once placed the industry on a commercial basis.

Among the early commercial beekeepers was my friend Adam Grimm, of Jefferson, Wisconsin. He was not satisfied with the little black bees and in 1868 went to Italy, where he secured one hundred queens and returned, but all the bees died on the way home. In 1870 he went again and secured one hundred more queens, sixty of which were still alive on his arrival at New York. He sold twenty of these queens to New York beekeepers and came home with forty. He made new colonies by division, to which he introduced these valuable queens. There was a wonderful bloom of wild flowers and, in the fall, of buckwheat, which gave him large yields of honey. Many times he would move his hives in covered wagons by night to other pastures.

In 1875 I paid him $18.00 for a daughter of one of those imported queens. When ready to come home, I asked how I could keep the queen from getting chilled. He took the little box with a piece of comb honey and a few worker bees and told me to place it under my clothing, next to my heart. So all the way home my queen was comfortable and the workers were humming.

In 1875 Mr. Grimm received $10,000 cash, from his bees, in sales of queens and comb honey. This money started the Jefferson Bank, with Mr. Grimm as cashier. With two industries to care for, he was overworked and, April 10, 1876, he died at the age of 52. He left fifteen hundred colonies of bees to be cared for by his son, George, a law student at the university, who is now circuit judge. In Jefferson cemetery, on his monument, is nicely carved a straw hive and below it the word "Grimm." The following winter Dr. Vance and I were appointed to prepare a memorial resolution to be copied on our records and sent to the Grimm family.

In 1877, in Madison, I saw a homemade extractor, made by Mr. Spangenberg. It consisted of a tin dripping pan, 12x24 inches, with raised sides, and ends still higher, with round holes through the end to admit a hoe handle. A nail in the lower end of the handle prevented it slipping on the floor. The comb was uncapped with a hot butcher-knife and laid in the pan. The extractor was operated by the top of the handle turning rapidly to revolve the pan around the handle. The comb was taken out and reversed to extract the other side; then the honey, which had collected at the bottom of the pan, was poured out. Owing to the labor of extracting, the honey sold for 30 cents a pound, which was 5 cents more than the price for comb honey. Rev. Winters, of Madison, also used this extractor, which cost less than a dollar to make.

In the spring of 1877 I saw an advertisement of a honey extractor which would remove all the honey and not spoil the combs. I at once sent for the outfit. The extractor was a tin can twenty inches in diameter and two feet deep, which turned with crank handle, all inside of a wooden frame. There were two pieces of wire cloth soldered to the inside of the can for the combs to rest against. The bottom of the can was funnel-shaped, with an opening at the bottom, but no faucet. This required that when speed was maintained I must drop on my knees, remove the pail and place an empty pail before the honey began running out. Many a time the floor had to be cleaned under this extractor.

I received more money for extracted honey than for comb, but it was a lot of work to get it. In the year 1877, from my seventy-nine colonies, I extracted and saved 6,000 pounds. The next year I increased my apiary to a hundred colonies and continued to increase each year until I had over 640 colonies, with from 35,000 to 49,000 pounds annual harvest.

In 1878 G. M. Doolittle, of New York, with some bees of Mr. Grimm's Italian stock, sold 712 queens and secured 11,592 pounds of comb honey. In the same year Mr. Mendleson, in California, with 700 colo-

nies, produced 44,000 pounds of honey, while his neighbor, R. Wilkins, produced 48,000 pounds of extracted honey.

Charles Dadant & Son, with 400 colonies, in 1889, harvested 48,000 pounds of honey. S. I. Freeborn, of Richland Center, Wisconsin, in 1882, with 250 colonies, got 29,000 pounds, and the same year his son-in-law, C. A. Hatch, produced 13,000 extracted and 500 pounds comb. The returns made Mr. Freeborn a prominent bank member.

Mr. C. A. Hatch was president of the Wisconsin associaton from 1888 to 1898. Franklin Wilcox, of Mauston, was the next president, from 1899 to 1902, with N. France as secretary. From 1902 to 1912 N. France was president. Ada Pickard was secretary for two years.

In 1885 Jacob Hoffman, of Monroe, extracted 14,000 pounds of honey from 140 colonies of bees. This honey sold for enough to pay for a new barn 30x40 feet. In Reedsburg stands a fine residence paid for by one harvest of comb honey by Mr. Kleeber, and his farm neighbor has a fine barn paid for with a single honey crop. In 1899 John Trimberger, of Granton, in Clark county, with 200 colonies of bees in hives formerly owned by Mr. Grimm, extracted 1500 pounds of honey and secured 18,000 pounds of comb honey. In 1898 A. G. Wilson, in Vernon county, harvested 22,500 pounds of extracted honey from 125 colonies. In 1899 Frank Zillmer, of Boscobel, with 127 colonies, got 14,500 pounds of extracted and 500 pounds of comb honey. I might give you pages of like reports.

Up until 1898, beekeepers had fine sailing, with little disease to fight. Neighbors were getting jealous and envied our prosperity. In September, 1898, in Philadelphia, C. A. Hatch as vice-president of the United States Beekeepers' Association read a paper which was followed by my own paper on bee diseases.

Mr. Freeborn, of Richland Center, was sued in June, 1886, by a neighbor who claimed damages because his bees had stung his sheep in an adjoining pasture, causing the sheep to die the following winter. You know what happens when a quiet beehive gets a hard bump. That presents the response of beekeepers all over the states to this lawsuit. We were united and employed several attorneys, one from Connecticut. The case was tried by Judge Clementson, who was an owner of sheep. After a lot of witnesses against the bees were heard, the judge dismissed the case for lack of evidence. He also gave the sheep owner some valuable advice on keeping sheep.

In May, 1887, the city of Arkadelphia, Arkansas, passed an ordinance prohibiting the keeping of bees within the city limits, with a penalty of $25.00 fine. Z. A. Clark was the goat and was imprisoned without due trial. Again the beekeepers' national association defended the case in July, 1888, when the judge declared the ordinance illegal and void. In New York two brothers, Utter by name, one a peach grower and one a beekeeper, got into difficulties. The peach grower brought suit, claiming his brother's bees opened the peaches and spoiled the fruit. Mr. Benton, of Washington, appeared and proved the bees could not puncture sound fruit. In Ohio, also in California, beekeepers were sued, claiming bees punctured grapes. In the western states farmers sued beekeepers, claiming bees were the cause of spreading leaf blight on the alfalfa leaves, and so I might refer to pages of like unjust and jealous complaints. Not one won its case in court, and each of you at present is enjoying the benefit of such united efforts.

Today we are living in a wonderful age, with much broader education, better methods and improved supplies, which make it possible for us to produce a much better quality of Nature's pure food, which is used in so many ways besides a table luxury. Here we unite as workers; no drones in our present conventions, each individual member endeavoring to make the world better for our being here.

Bee Veils With Doors and Windows

By Max Welton

Betty Bee's suggestion about bee veils is very much in order. The writer has long thought that some improvements in them could be made. As it is well understood that necessity is the mother of invention, the ladies' complaint about the present veils leads one to think that changes will soon be made; not because the ladies will invent new and improved patterns, but because there is always a mere man standing by to take the brunt when mother or necessity calls.

Before the inventors get busy, I'd like to suggest that the present equipment is entirely lacking in facilities for the tobacco user. One might manage a pipe, but a cigar or cigarette would be hopeless.

Therefore I would suggest that the future bee veils be provided not only with doors, but with windows. Window glass can be used for the callow youth who has not risen to the dignity of glasses, and the bee master can have his furnished with a pair of specs of his favorite prescription. This will conserve the eyes of the young people, and the old one's temper will be improved, thus making two conservations grow where none grew before—a rather nifty agricultural proposition when you come to think of it.

For the ladies, until someone invents a sting-proof cosmetic, not much change will be needed from the present headgear. All that is needed is to cover up the nose and the other eye. This could be accomplished by some kind of a false face, which might or might not confer a favor upon the bees, according to circumstances.

The men should have a catcher's mask of fine wire for the front elevation. In connection with this, a pith helmet might be worn and, for protection from the rear, sticky fly paper might be suspended therefrom. The White Knight told Alice that he always carried a hive to be ready in case he should find any bees, so the beekeeper ought always to carry a few bees in case he should run across a hive. A safe way to do this would be to have some attached to sticky fly paper.

Consolidated Packing Company Buys Alfalfa Honey in Quantities

Considerable buying of alfalfa honey was done this season by a new factor in the business—the Consolidated Packing Company of San Francisco, California, through their Fresno and Livingston plants.

The Consolidated Packing Company is part of the Catz combine, international merchants, and the honey is going to their European houses, Catz Brothers, Holland, and Catz Trading Company, Hamburg, Germany. Beekeepers will surely be glad to know of this new marketing channel. Those interested should write direct to the Consolidated Packing Company, San Francisco, California.

Bees in Large Hives Inferior?

As the bees in Dadant deep frames are again shown to be producing less than the others, at the Ottawa Experimental Apiary, one of our friends living near there suggests that this is due to the location of the Dadant hives, which are close to large pine trees, on the east side of them, where they do not get the sunshine for two hours or more after the colonies in smaller hives have gone to work. No doubt such a condition might have influence on the production of brood.

The Occurrence of Melezitose in Honey

By C. E. Burnside, Assistant Apiculturist, Bureau of Entomology,
United States Department of Agriculture

CHEMICAL analysis of honey from many sources has shown that it consists of dextrose and levulose in about equal proportions and a small quantity of sucrose, water, and other nonsaccharine substances.

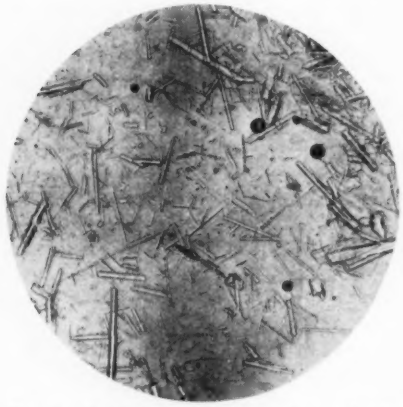


Fig. 1. Crystals of melezitose in scrub pine honeydey honey

It has been known for a long time, however, that a rare trisaccharide, melezitose (Figs. 1 and 2), sometimes occurs in the honeydew from certain pines and other trees. Since bees often gather honeydew in the absence of floral nectar, it might be expected that melezitose would be stored in honeycombs during favorable seasons. In 1918 Hudson and Sherwood (3) recognized crystallzied melezitose to the extent of about 10 per cent to 20 per cent in samples of honey produced in 1917 at Port Royal, Pennsylvania. They also reported finding it in 1918 in other samples of honey from Pennsylvania and in samples from Maryland, near the District of Columbia. The samples from Maryland were obtained by Dr. E. F. Phillips (5, p. 118), who observed the peculiar crystallization in honeycombs that were being filled by bees during July, 1918, in the vicinity of Drummond, Maryland.

The source of these samples of honey was traced to the scrub pine, **Pinus virginiana.** Aphids and scale insects were observed on this pine and other coniferous trees in the same locality, and it seems to have been believed that the honeydew which the bees were gathering was an insect excretion, although this was not definitely determined. Without evidence to the contrary such a belief is natural, since the honeydew of deciduous trees and in some cases that of pines is known to consist principally of insect excretions. It is well known that saccharine solution is sometimes exuded from the leaves and branches of plants. Recent investigations by Davidson (2) have shown that the honeydew of Douglas fir, **Pseudotsuga taxifolia,** which consists of about 50 per cent of melezitose, is an exudation of the leaves and is not an insect excretion. It seems probable, therefore, that other coniferous trees exude honeydew containing melezitose in a manner similar to that of the Douglas fir. If melezitose is produced within the leaves of pine trees, as it probably is, since insects do not synthesize the sugars which they excrete, some of this sugar may pass unchanged though the digestive tract and appear in their excretions. Additional observations seem to be needed.

Between the termination of the principal spring flow from the tulip tree, **Liriodendron Tulipifera,** in May or early June and the flow from autumn flowers in September and October, very little honey is stored by bees in the vicinity of the Bee Culture Laboratory at Somerset, Maryland. During July and August the bees work sweet clover, **Melilotus alba,** as well as several species of Trifolium and other herbaceous

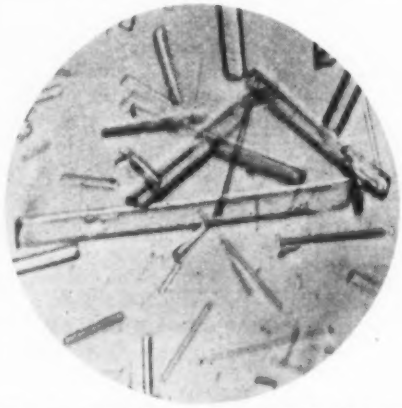


Fig. 2. Crystals of melezitose isolated from scrub pine honeydew honey by washing with glacial acetic acid. x 180.

plants, but as a rule only an insignificant quantity of honey is stored. From July 3 to 13, 1928, however, a heavy honeyflow occurred in this and neighboring localities in Maryland and the District of Columbia. The honey granulated rapidly in the combs, granulation being first noticeable the second day after the honey was stored. From day to day the granulated portion was covered with liquid honey, so that upon superficial examination granulation was not evident. With the cessation of the flow the honey soon granulated to a semisolid consistency.

Attempts to extract were successful only with combs in which the honey had been stored for two days or less. After about two days the honey was so completely granulated in the combs that it could not be thrown out without crushing them. In the extracted honey, granulation continued rapidly and fermentation soon began. The honey was thin, of poor flavor, and of an amber color. When the honey was heated with alcohol, which precipitates the dextrins and related substances that bees cannot digest, the quantity of precipitate was small for honeydew honey.

During the flow the deciduous trees near the apiary were examined, but no sign of honeydew was observed on the leaves, and only an occasional bee was seen about them. Bees were observed working sweet clover and a few were seen on the flowers of other herbaceous plants. Sweet clover, however, is not abundant enough in the vicinity to account for the flow.

Unfortunately it was not suspected until the flow had nearly ceased that the bees were gathering honeydew from the scrub pine, **Pinus virginiana.** When this pine, which is abundant in this region, was examined numerous bees were observed on the leaves and twigs, apparently gathering a honeydew. Neither the origin nor the composition of this honeydew was determined, since only minute quantities were present. It seems safe to assume, therefore, that the rapidly granulating honey was gathered from the scrub pine, as was the case in 1917 and 1918.

The identification of sugars by the properties of their crystals is not an easy task for one inexperienced in this sort of work. The identification of crystallized sugar in honey is, however, simplified by the fact that few sugars crystallize from honey. The gross appearance of crystallized dextrose hydrate, the sugar that commonly crystallizes from honey (Fig. 3) may, however, vary considerably in different honeys. The presence in honey of numerous rod-shaped

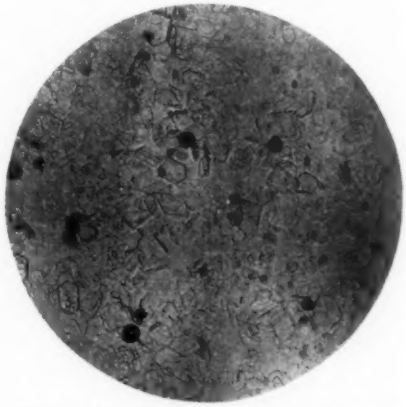


Fig. 3. Dextrose hydrate crystals from honey. x 50.

crystals resembling those shown in Figures 1 and 2 would lead one to suspect melezitose, especially if crystallization occurs in the combs soon after the honey is stored. When crystals of dextrose hydrate are large, but very thin, flat plates, they are not readily seen under the ordinary microscope except when viewed on edge. In this case they appear as slender rods. When lying flat the two long edges of a large crystal may easily be mistaken for two slender rod-shaped crystals, the ,intervening body of the crystal not being seen at all because of its great transparency. The true shape of such crystals can be seen more readily when viewed in polarized light with the aid of the petrographic microscope.

The crystals of melezitose (Figs. 1 and 2) differ markedly from those of dextrose hydrate (Fig. 3), and the two can be distinguished by microscopical examination. Wherry (6) describes the crystals of melezitose, after purification by recrystallization, as rhombic, "those from water being broader than those from alcohol." The crystals of melezitose illustrated by Wherry are also broader than those in the honey produced in the apiary of the Bee Culture Laboratory (Figs. 1 and 2). He further says: "Under the microscope melezitose presents the form of plates and rods, in part rectangular in outline and in part terminated by faces inclined at large angles. . . . In parallel polarized light the double refraction of the plates is seen to be weak, and the colors are mostly brilliant grays of the first order. . . . Certain of these properties, especially the habit and the weak, double refraction, may be turned to account in the identification of this sugar in honey or honeydews. The **d**-glucose which frequently crystallizes out in honeys is in rods terminated at one end by planes lying 60° apart and rounded at the other end, and in parallel polarized light showing at least in the centers of the grains brilliant colors of the second order, with elongation. . . . Sucrose can also be readily distinguished from melezitose by its much greater double refraction." Wherry believes that an examination of the crystals which develop in honeys will aid greatly in the systematic search for the occurrence of melezitose.

Fig. 4. Dextrose hydrate crystallized from water. x 50.

Crystals of dextrose hydrate in which a molecule of water is incorporated with the sugar molecule are shown in Figure 3 as crystallized from honey, and in Figure 4 as crystallized from water. Crystals of anhydrous dextrose, in which water is not incorporated with the sugar molecule, were recently recognized by F. P. Phelps at the Bureau of Standards sugar laboratory, in honey produced in southern Colorado. The anhydrous form of dextrose (shown in Fig. 5) crystallized from water, however, is far less common in honey than is dextrose hydrate.

Melezitose is easily isolated from honey, since it crystallizes before dextrose. At first Hudson and Sherwood (3) isolated it from honey by diluting the liquid honey with glacial acetic acid, separating the crystals by filtration, washing with glacial acetic acid and absolute alcohol and drying at 70° C. It was then purified by recrystallization. More recently

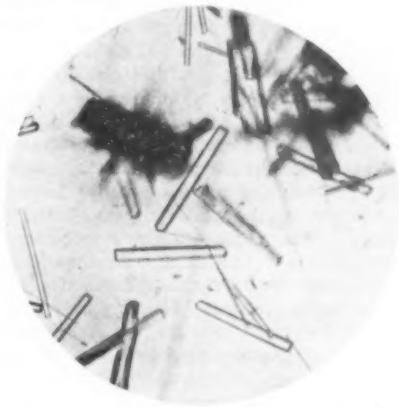


Fig. 5. Anhydrous dextrose crystallized from water. x 100.

Hudson has isolated about sixty pounds of melezitose (a larger quantity of this rare trisaccharide than had ever before been obtained in a pure form) from honey produced at the Bee Culture Laboratory, by grinding the combs and centrifuging the resulting mass. This gave a rough separation of the crystals, wax, and liquid honey, after which the crystallized melezitose was dissolved and further purified by recrystallization. The yield of melezitose was about 10 per cent, but in well selected samples it would have been greater than this, since there was considerable tulip honey in the combs, along with the honeydew which carries the melezitose.

The specific rotation in aqueous solution of melezitose isolated from honey before purification was found by Hudson and Sherwood (3) to be +89.9°. After purification by recrystallization from hot aqueous alcohol and drying at 70°, the crystals show a rotation described as [a] 20/D equals +88.2°. The melting point is 148°.

When combs of honey are melted, some of the melezitose is probably hydrolized, but if the liquid honey is poured off and quickly cooled at short intervals partial recrystallization occurs. Partial recrystallization also occurs in extracted honey after it is liquefied if care is used not to heat it to too high a point or for a longer period than is necessary to liquefy it. An arrangement whereby the liquefied honey would drain continuously from the combs would probably result in more abundant recrystallization.

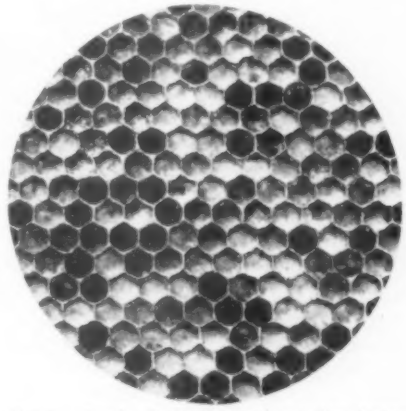


Fig 6. Comb of scrub pine honeydew honey taken from a colony in March. The bees consumed most of the liquid portion of the honey during winter, but left the crystals of melezitose which appear as white masses at the bottom of the cells. Later in the season these crystals are removed and discarded.

The combs may be saved by extracting at intervals of about two days during the flow or by allowing the bees to rob the honey or use the combs of honey as food. Robbing bees take the liquid portion of the honey and leave nearly dry crystals of melezitose, which are thrown out of the cells and collect at the bottom of the hive mixed with particles of wax.

Should the beekeeper prefer not to have such rapidly granulating honey stored in his super combs, its accumulation there may, to a large extent, be prevented by reducing the available room for storage to a minimum during a melezitose flow. Much of the honey that is stored in the brood chambers will be used by the bees during the remainder of the brood-rearing season.

There is no doubt that in the past melezitose has been stored by bees on numerous occasions. A beekeeper at Bethesda, Maryland, who observed the rapid crystallization in his combs in July, 1928, claimed to have observed the same phenomenon more than twenty years ago. An inquiry from South Carolina (4) makes the

following statement on the rapid granulation of the honeydew in the combs: "My bees have stored a quantity of honeydew that granulated as fast as it was stored. . . . My bees stored a lot of it some twenty years ago, before I had so many colonies. I soaked the combs, extracted, and barreled it for vinegar." Nothing was said concerning the source of the honeydew or the reason for the rapid crystallization.

Melezitose has been identified stored in combs only within the range of the scrub pine, but it is probably stored by bees in other regions where it occurs in honeydew. During the past year melezitose was observed by the writer in a number of apiaries within a radius of ten miles of the District of Columbia. A similar rapid granulation in the combs was also reported by beekeepers within the District of Columbia and in Maryland.

A sample of the honey produced in the apiary of the Bee Culture Laboratory was examined by beekeepers at the annual meeting of the Piedmont Beekeepers' Association held at Lynchburg, Va., in January, 1929. They claimed that a similar honey which granulates rapidly in the combs is stored in large quantities by bees in that locality during occasional seasons. The source of this honey was claimed to be honeydew from the scrub pine, which is abundant there.

Beekeepers in central Pennsylvania claimed that rapidly granulating honey from the scrub pine, stored by their bees in 1917, was unfit for winter stores and caused the loss of colonies. There are also reports of excessive winter losses caused by honeydew honey from the Douglas fir.

Observations made by the writer and others, however, during the past year conflict with the earlier observations on the fitness for winter stores of honeydew honey from the scrub pine. During the winter of 1928-29, when the winter stores of the colonies in the apiary of the Bee Culture Laboratory consisted in large part of this honey, the winter losses were not heavier than during previous winters when the stores consisted chiefly of honey of floral origin. Average wintering was also reported from Maryland near the District of Columbia by beekeepers whose bees stored a large quantity of rapidly granulating honey from the scrub pine during the season of 1928. Beekeepers near Lynchburg, Virginia, claim that winter losses are not greater than usual following seasons of heavy flows from the scrub pine.

Evidence which seems to be convincing that the honey does not cause excessive winter losses, at least in this locality, was obtained by G. J. Abrams at the University of Maryland. He reports, in a private communication dated April 26, 1929, that the stores of bees in the experimental apiary of the university during the winter of 1928-29 consisted of a large quantity of granulated honey from the scrub pine as well as honey of floral origin, and that no excessive winter losses occurred. Mr. Abrams wintered a colony on combs of the practically pure granulated honey, and on April 26, 1929, this colony was very populous in adult bees, and brood was being reared in seven combs.

It is clear from these observations that honeydew honey from the scrub pine is not, in all cases, unfit winter food for bees. It may be that the death of the colonies of bees in central Pennsylvania was due to causes other than the poor quality of the winter stores. On the other hand, it may be that the conflicting reports can be explained by different climatic conditions or by a larger quantity of indigestible matter in the honey stored by bees from the scrub pine in central Pennsylvania.

As a rule, only the liquid portion of granulated honey is consumed by bees, most of the crystals being discarded. Figure 6 shows a comb of scrub pine honeydew honey that was taken from a colony in March. The white masses in the bottom of the cells are crystals of melezitose that remain for a time after the liquid honey has been consumed. Later the crystals are removed from the cells by the bees and are sometimes found in large numbers on the bottom board. Since melezitose crystallizes quickly after the honey is stored, it is evident that bees use but little of this sugar during the winter. It would seem, therefore, that winter losses caused by honey containing melezitose are due to the poor quality of the liquid portion of the honey.

Phillips (5) has shown that bees in cages are able to digest melezitose and live practically as long on it as on cane sugar. In similar experiments Bertholf (1) found that honeybee larvæ are also capable of digesting melezitose.

Judging from the observations that have already been made, there seems to be no need for serious loss resulting from an occasional heavy flow of honeydew honey from the scrub pine, and the honey may be of considerable value to the beekeeper in supplying needed stores. The honey is satisfactory as food for bees throughout the active season, and, at least in the vicinity of the District of Columbia, a quantity of it that approached or perhaps equalled the quantity of floral honey used as winter stores caused no unusual losses during the winter of 1928-29. It is unsatisfactory for table use in the form of comb honey, since it is poorly flavored and granulates before it can be marketed. Extracting would involve considerable additional labor, hence it cannot be marketed readily in the extracted form. The best use, therefore, of this rapidly granulating honeydew honey from the scrub pine would seem to be as food for bees.

The Office of Bee Culture Investigations at Washington, D. C., will appreciate it if anyone who observes this rapid granulation of honey in the combs will communicate the information to this office in order that the range for the occurrence of melezitose may be ascertained.

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International Air Mail Shipment of Queens

What is believed to be the first international air mail shipment of queenbees to be made in this country attracted much attention from operators and field clerks as they were transferred from one transportation line to another in Texas this week.

The shipment consisted of fifty queenbees en route from Medina, Ohio, to Guatemala. Each of the bees was in its separate compartment and each was buzzing busily at the Texas transfer stations, according to the reports of the field clerks. The shipment was in two packages, twenty-five queens being in each package. Air mail postage totaling $15.00 was carried on each box.

The bees were routed over three air transport lines: the National Air Transport to Fort Worth, where transfer was made to the Texas Air Transport air mail line, a change being made to a Mexican Aviation Corporation plane at Brownsville, Texas.

W. H. M.

Caution in Going Over to Yellow Bees

By Jes Dalton

Ever since I started shipping bees I have bred, used, and sold light-colored bees. I sincerely believe, however, that there are few people who understand how easy it is to get entirely off on color. It should be borne in mind that yellow does not make a good bee any more than black and white makes a good Holstein cow, or yellow a good Jersey cow.

Let me illustrate how it works out in the apiary. This very morning I had occasion to examine a little neglected queen mating yard that has not been touched for nearly two months. There were twenty colonies. Two have such black bees that they will not do to consider. Two stung me on the hand while working with them. In picking good stock this would eliminate these two also. Of the sixteen others, two were worth considering. They were light in color, had nice brood, were well balanced in honey and bees, and were pleasant to handle. They were the choice of the lot, but neither of them are golden bees.

Out of these twenty colonies, then, not one would do for a breeder if we take color into consideration. If we judge by gentleness, honey storing ability, and so on, not only the two mentioned, but others, would have passed.

At the reconstruction camp at New Orleans, in the fall of 1927, we saw most of the points of every colony, as we had stock donated from every prominent breeder in the United States. One particular colony built up quickly to supering strength and I marked it with a pencil mark on the hive cover. They were gentle, thrifty, stored well and were of a fair color, but not golden. They ranked with any colony in the yard.

In 1928 they built up and repeated what they had done the year before. They had been moved in the meantime from New Orleans to my place. I tested them for tongue reach, and, besides not coming up in color, they were short tongued. I neglected to requeen them, chiefly because I hesitate to destroy a queen with a good record.

The spring of 1929 was a record breaker for bad weather and poor results. In April, young Laidlow was inspecting my home yard and I asked him to mark any hives that might need attention, with a brick or chunk of dirt, as I was busy with other things.

When he finished he told me he had marked two—one run-down, drone-laying colony which was trying to supersede and one colony that was starving. The one which was superseding had the old queen from the reconstruction work.

I was busy, and, as the weather was bad, I didn't bother them, so they raised a queen from her larvæ. The season continued to be bad and still I didn't bother them until their working activities attracted my attention. They needed supers and I gave them two. Few of the other colonies had much.

Today I have just examined them. It has been the worst season I can recall, but this colony has a solid super of honey in standard frames and a second super with ample for winter stores, far outstripping any colony in the yard and ranking up with any I own. They did this from a weak supersedure, drone-laying, colony, without a particle of help.

They have always been gentle enough to handle, but they have deteriorated in color until they are too dark to consider for breeding, even for rearing drones. Yet they are evenly marked.

I have written this to show that color is going to be costly. I, myself, like a light colored bee better than I do a dark one. They are prettier to look at, and we certainly enjoy pretty things. Also, color is the easiest point to identify. We see it at a glance.

To find gentleness we have to handle a bee. To discover storing ability we have to wait a season. To find tongue length requires time and patience. Color shows at once. Yet if we ignore everything else and judge by color alone we make a big mistake and a costly one.

It seems to me that such subjects as color should be studied carefully. Few of us know the rules governing the reactions of the color factor in the breeding of queenbees.

A Good Answer

"Why do some states prohibit spraying of fruit trees in bloom?" was the question put to the Question and Answer column man who takes care of that column for the Rocky Mountain News of Denver. He answers:

"The practice is not advised by economic entomologists because it kills honeybees, causing a loss to the beekeeper besides interfering with the proper pollination of the blossoms, and therefore is detrimental to the fruit grower. Bees exert an important influence upon vegetable life by their service in the cross-fertilization of plants, some of which now depend wholly upon their co-operation for existence."

When should you spray? Just as soon as the blossoms wilt and drop off. To wait until the fruit forms will necessitate washing the fruit, or dire results may follow.

J. B. Dillon.

Honey Dressing for Fruit Salad

"I shall be delighted to come to dinner," said a new friend of mine, "but please, my dear, remember that I simply cannot have either oil or vinegar in my salad dressing."

I smiled sweetly, but my heart failed me. I am rather a new cook, and I didn't know other ways of blending a dressing than those where good old olive oil and vinegar played an essential part. Then I consulted my newest cook book and found a dressing where lemon juice was substituted for vinegar. I was so elated I forgot to read the other ingredients carefully. I marked the place, went about with a light heart, and on the afternoon of the dinner, got together my fruit and nuts, and then the blow fell. When I began to assemble the things for the dressing I found that I needed maple syrup! I did not have any; was five miles from a grocery, and no car at that hour. I yielded for a few moments to black despair, and then my inspiration came. I remembered a bucket of strained honey which had been brought me from the country and which I chanced to have on my pantry shelf.

Taking my life in my hands, so to speak, I poured a cupful of it out and used it in place of the maple molasses. The result was that not only my particular friend but everyone else "raved" about my salad. I have tried it since at two parties with such good results that I pass it on.

One can use any sort of fruit which will blend well instead of the kinds herewith suggested. In fact each time I have changed the fruit contents of the salad.

Fruit salad with honey dressing:

4 oranges
2 apples
½ raw pineapple, or equal amount cooked fruit
¾ lb. Malaga grapes
¾ lb. English walnuts (or any other mild nut meats)
Maraschino cherries

Keep cool till used.

Dressing:

Cook together yolks of two eggs, one level tablespoonful each of flour and sugar (brown is best), juice of two lemons, half teaspoonful salt. After removing from fire, mix with three-fourths cup of strained honey. When cold, stir in one-half pint of cream, whipped stiff.

This will serve ten people generously. Lida Keck Wiggins.

A modern stand in Ohio. Here it is that the farm "food factory" retails its products — honey, eggs, jelly, apples, fruit and flowers.

Tempting the Tourist's Sweet Tooth

By Avis Vestal

THERE are so many sweet things one can say about honey. I have been listening to them—with my eyes! My favorite outdoor sport is "motouring," and as I ride I read and write the merchandising messages that line the highways. "Friend husband," at the wheel, is apt to be breathlessly asked at any moment to clamp down his four-wheel brakes and hop out with the camera, while my pencil scratches industriously across the dog-eared page of a notebook which travels opened wide upon my lap.

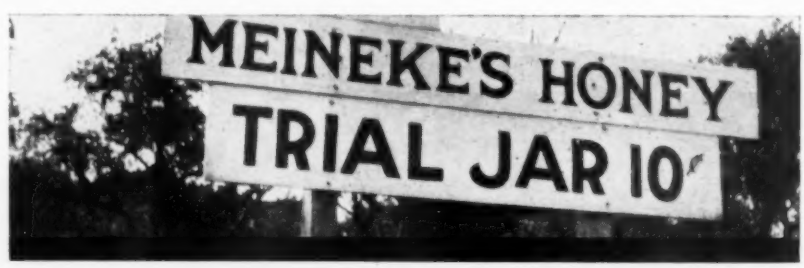
Sweet stuff, f'rinstance, has tempted us many a time and oft in a row of amber glasses set upon a shelf at some farmer's wayside stand. Perhaps he grew the delicacy in his own clover field. Maybe he is a middleman who buys and sells the sweet. Anyway, he sells it. Honey advertises itself when the eye gets to it, but modern honey marketing practice anticipates that moment. Before the selling stand is reached a delicate hint is dropped by a roadside sign far enough away to whet the appetite, allow a quick decision upon the part of the hungry "prospect," and permit a comfortable halt, pocketbook handy, without squealing brakes. As a clever example, we took a little outing on the glorious Fourth, and near Deer Grove, to the northwest of Chicago, we received an advance notice, "You are on a bee line to Meineke's honey." We just buzzed along a little further and lighted upon the source of supply where we could swap money for honey.

Honey producers working upon a large scale can well afford an advertising artist to devise and register a slogan, a trade name, a pretty picture, and let the world know about it. It can be broadcast by commercial radio, spread in type in the morning paper, or painted upon boards that tempt the tourist. My newspaper offers a high class example in honeyed words in "Airline Honey, from flower to bee to you."

Not all of the constructive imagination in the world, however, is found behind the dome of some highly paid advertising agent's forehead. Try your own hand at it and perhaps you can invent for your own honey cans and roadside signs as clever captions as any I have copied down as samples for you!

The Ness Honey Farm, "down state," near Morris, Illinois, drew my eye as I rode by. The words were plain and prosaic—just plain fact, not embroidered by fancy — "Pure Honey for Sale." A high board fence, visible 'way down the line, turned the trick of attracting notice. The "see-ability" of that windshield fence beats any sign. It shielded the apiary, which is the second thing the stranger spies, set in an orchard at the front edge of the farm. And, thirdly, the sign follows the fence and the apiary into the eyesight of the nearing motorist.

Near the Rhode Island-Connecticut line last summer an attractive silhouette served to attract my attention. A black lantern, painted in relief upon a white background, ad-



Going or coming, by auto or "Shank's mare," you can't escape Meineke's honey signs, near Deer Grove, northwest of Chicago.

vertised the "Dark Lantern Apiary," offering "Honey, Nature's Own Sweet."

Once upon a time—the location has escaped a memory which retained the tempting phrase—I read as I toured an accomplished advertisement of honey as "The Sweetheart of the Flowers."

Approaching Washington, D. C., last season, I "met up with" a novel roadside invitation to suggest stopping to the tourist, "Visit the Home of Three Million Bees." Or was it three billion bees? My driver had whirled me by that time before my eyes were properly focused, and "million"and "billion" differ in only one letter, much as they are apart numerically.

"Signs of the Times," in honey marketing, need not end with the few I have listed as living and serving samples. I'll wager there are "fifty-seven varieties" of honey signs not yet conceived. It's a game that's as much fun and more profitable than crossword puzzles, riddles, conundrums, trick pictures and other amusements of wit and pencil contests. My own 'magination is lured to start the ball a-rollin'. They are amateur efforts, fresh from the typewriter and not seasoned by standing to age. If any of them strike your fancy, help yourself.

For honey candies the familiar slogan of the florists suggests a modification from "Say it with flowers" to "Say it with Sweets," a thought apropos of Christmas, St. Valentine's Day, Mother's Day, birthdays and other gift-giving seasons when candy is in order. Married men, don't forget the wedding anniversary! A box of candy—honey candy, to be sure—is a gracious gift to let her know you remembered the date this year.

Does anyone care to try out "A set of sweet teeth for honey candy?"

Sometimes a very informal "ad" is a good worker. Ladies, try out your best honey confectionery with "Honey candy is surely dandy." It may not be the best English, but that "candy" and "dandy" combination is apt to intrigue the memory.

Honey cakes baked in fancy shapes should attract both the eye and the palate and have a market for parties. Better the wording if you can from this tip as a starter: "Honey Cookies for Eats and Lookies."

If I could paint, I'd try out on the tourist a picture of the "Aunt Jemima" type — pancakes, golden brown; honey, amber as it flows from the pitcher, and "A breakfast sweet for you to eat." Here, again, is a duplication in sound; not poetry, of course, yet that rhyming of "sweet" and "eat" will almost sing itself, over and over.

Does not your honey almost ask you to create a honeyed rhyme tying up two lines and the honey theme with "bread" and "spread"? Try it out.

"Thinks I to meself," and I can't help writing it, "What can the honey do? It can help to sweeten you."

You're welcome.

This Is a Back-Handed Slap, But There Are Many Others Who Think the Same Way

I love bees and I love the American Bee Journal. My interest in bees began a long time ago and I have learned many things—among them that, with disease all around, by treatment one could secure good crops of honey, especially if you take time by the forelock in treating.

Then I came to California. Out here we have a law which reads: "The duties of a county inspector shall be to cause an inspection to be made when he deems it necessary; and if disease exists he shall notify the owner and require such person to eradicate the disease within a certain time to be specified in the notice. Such diseased apiaries are hereby declared to be a public nuisance, and when such owner shall refuse or neglect to abate the nuisance, it shall be the duty of the inspector to abate the same, either by eradicating or destroying the diseased hives, together with the combs and the bees therein."

The American Bee Journal is conscious of the fact that, under the law, the office of the state director of agriculture of California, with the horticultural commissioners under him in the several counties of the state, have gone about for the last two years utterly and ruthlessly burning and destroying, according to their own published accounts, fully 16,000 colonies, together with all the honey, honeycombs, wax and frames, without giving anyone the right **to treat.** They have accomplished this destruction by threat of arrest, such threats being expressed in the written notice served.

To write a protest to a bee journal about this could accomplish nothing against what appears to be a conspiracy to discourage the small beekeepers instead of doing them good. There is only one remedy, and that is to sue these bee-burning gentlemen.

It is not to be expected that reports of such suits will ever be printed, for the influence of the bee papers is in the direction of the bee burners, because they are all alike in their failure to take note of any effort to combat such wrongs.

There are fifteen defendants involved in a test case now pending in the courts of California, and, with the aid of their attorneys, they have been able to stall the thing along for many months. That is natural, I suppose, and no complaints can be made of it. Nevertheless, the time is coming when the courts of this state will pronounce judgment in the matter, and it is believed that when a judgment is entered against these bee policemen for the value of some of the property they have destroyed, our influential bee papers will take very small note of the proceedings.

John Gray, California.

(Ed.: So far, the American Bee Journal, at least, has given both sides in this controversy a chance to say what they wanted to say. We have expressed ourselves as being in favor of burning under some circumstances and in favor of treating under others. This paper is one of the first to publish the recent attempts to treat combs with formalin gas. Readers can judge for themselves. However, we believed that Gray should have his say.)

A Family Wiped Out

B. F. Smith, Jr., of Fromberg, Montana, was killed eighteen months ago on a railroad crossing. The Fromberg Herald now reports the killing of Mrs. Smith at the same crossing. We read:

"Wednesday afternoon, September 4, a northbound Northern Pacific freight train struck a car in which Mrs. Smith and her niece, Miss Melva Coe, were riding. Miss Coe, who was at the steering wheel, was thrown from the car when it hurtled down an embankment, and came out with severe cuts and bruises about the head and upper body. She is resting as well as could be expected at the Smith home.

"Mrs. Smith was taken from the wreck and her injuries consisted of cuts and bruises, a dislocated shoulder, broken hip and thigh on the right side. She was taken to the Deaconess hospital in Billings on the 5:20 Burlington train that night. X-ray examinations showed internal injuries and an operation was resorted to today. Shock and the terrible injuries were too much for her to overcome and death claimed her at 10 o'clock Thursday night.

"The two ladies started to drive from the residence over a private railroad crossing to the honey warehouse. Neither saw the approaching train until it struck their car. The view of the railroad is reasonably clear at this point in both directions and the train is said to have been moving slowly."

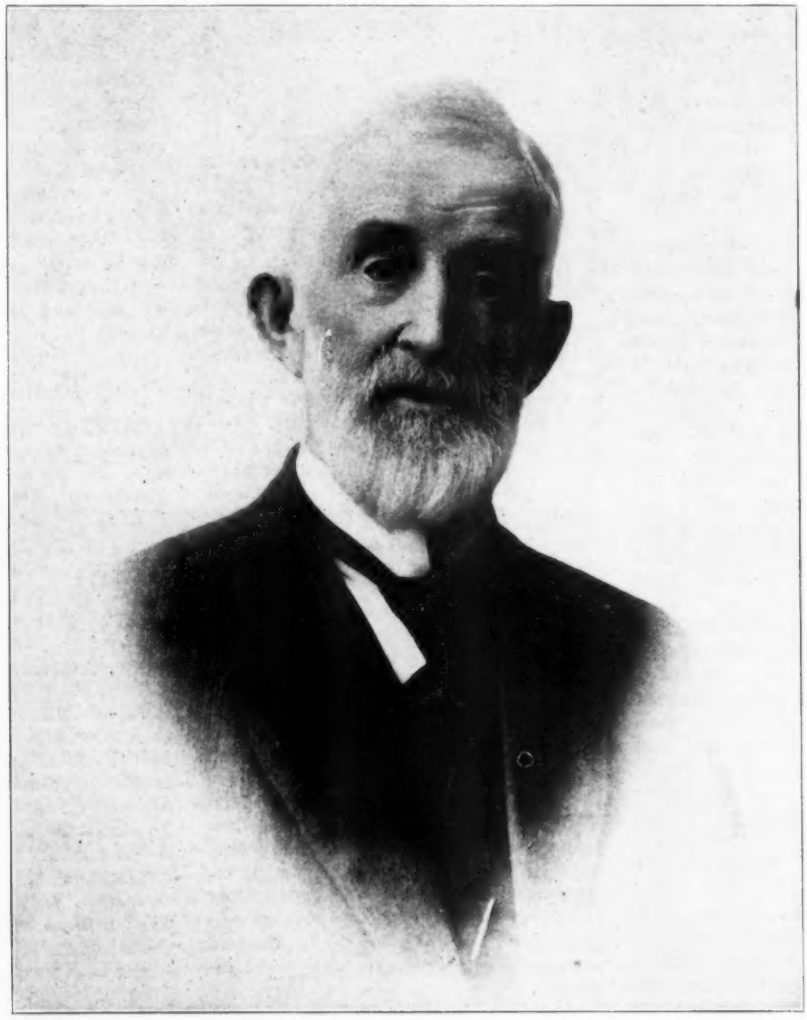
As Eugene, son of the Smiths, died of appendicitis about a month after his father's death, the only member remaining of the family is the daughter, Mrs. Herman Gloege. She has the sympathy of everybody in this sad occurrence. The Smiths were noted beekeepers and honey dealers.

Lives of Famous Beekeepers

By Kent L. Pellett

JOHN HARBISON

Mr. Harbison was all that the word "honey producer" implies—George W. York



IN the years following 1849, California gold drew a frantic stream of humanity across two thousand miles and more of the American continent — drew hustling, grasping Americans to a life of struggle, of wealth, and often of defeat in the land of the setting sun.

Some resigned themselves to debauchery and lived on the grime of the world. Others, equally disappointed in their quest for the yellow stuff, took courage and sought gold in the soil itself, in growing things. Of the latter mold was John Harbison, who turned desert flowers into gold.

John Harbison, a 28-year-old Pennsylvanian of Irish extraction, who was engaged in beekeeping and the nursery business with his two brothers, after a year of severe drouth, turned his back on his native state and his business and followed the lure of gold to Amador county, California, where he went to work in the Campo Seco mining camp. Fortunately for our story, he lacked adaptation as a miner, and, after months of gruelling work and little gold, he got a job in the Sutterville sawmill.

But lumbering was little more to his liking and John began to feel that the call of gold had been a specious one. He made up his mind to return to Pennsylvania. But his Irish pride refused to allow him to return to his family empty-handed and defeated. He first would wrest from that sunny and apparently barren land a small fortune to take home with him.

John fell back upon the trade he knew best, that of raising fruit trees. There was little fruit in the Sacramento Valley, and the shade trees were confined mostly to the lower slopes about the streams. He procured a shipment of nursery stock and later of shade trees from his brothers. His plantings established the first nursery in the Sacramento Valley. The shadows those first saplings cast were of the large fruit orchards that later were to creep up and down the expanses about the Sacramento River.

Harbison's nursery thrived. He found a market for his trees, and in two years he accumulated money enough to return to Pennsylvania in style. But, by then, the West was in his blood; he found something sweet in the western harshness. He

decided to go into beekeeping instead.

He had suspected that gold lay in the desert flowers, in the sage and sumac that dotted the gray slopes. Would not beekeeping succeed in the Sacramento Valley? The horny-handed and long-bearded California prophets said no. People had brought shipments of bees into California, but with poor success. The only colony ever to reach Sacramento Valley had died shortly after its arrival. No, said the wise men, Sacramento Valley might be a place for mining, to pasture sheep, or even to raise fruit trees, but it never would be a land of honey.

But Harbison thought it worth trying. He sent east for a colony of bees. Only a few of the bees were alive when they came, but they quickly renewed their forces and made a good harvest of honey. Beekeeping would succeed in California, he decided.

In 1857 he returned home to secure stock for founding an apiary in Sacramento Valley, and started back to California with sixty-seven colonies, taking them on one of the longest continuous journeys on which at that time bees had ever been taken, by boat to the Isthmus of Panama, where he crossed to the Pacific Ocean and gave the bees a flight at Aspinwall, thence to San Francisco and up the Sacramento River to his home. Five colonies died on the way. Harbison cut the number of his colonies down to fifty, uniting some of the weaker ones. This doubling, in spite of the fact he could have sold colonies for one hundred dollars each.

For people wanted honey. It sold for one dollar a pound; and when the Harbison bees thrived and produced large yields of honey, they brought a winged avalanche across the California slopes. The year following Harbison's importation, one thousand colonies came into the state, but many found inexpert keepers and less than two hundred survived the rigors of the westward journey. Later importations, however, were more successful, and it was not many years before beekeeping was a thriving industry in California.

In 1869 Harbison formed a partnership with R. G. Clark and moved bees south into San Diego county. Here, on the upper slopes and valleys, they found stunted brushwood, luxuriant growths of white sage, sumac, and other flowering shrubs. The only industry inland was sheep grazing. People scouted the idea of raising bees in San Diego county as they had scouted the idea of beekeeping in Sacramento Valley.

Harbison and Clark located their first apiary on a mountainside twenty miles east of San Diego, and, with great expense and labor, built roads

Mt. Harbison, named in honor of the pioneer beekeeper.

to it through canyons and over hills, that they might haul away their crops. The solitary sheep herders resented the intrusion of settlers who might break up the ranges, but they could see no possible harm to come from bees, and welcomed the two beekeepers. Little did they realize that those few hundred colonies on the mountain slopes, with their crops, would bring more and more beekeepers, and that within a few years the section would be known as the "bee belt" of California.

Grove in which Harbison Apiary was formerly located.

The apiary increased to several thousand colonies and in 1873 Harbison bought his partner's interest. That same year there sped over the railroad tracks to Chicago a golden freightage, the first carload of honey from California—from the Harbison apiary. Harbison supervised personally the sale of that honey on the Chicago market. It spread nation-wide California's fame as a honey state. The fate of San Diego county was sealed. Within a few years Harbison had between three and four thousand colonies and employed as many as fifteen men in their care. By 1876 there were three hundred beekeepers in the county, trying to follow in Harbison's footsteps.

They looked to him for advice. They read his book, "The Beekeepers' Directory"; they adopted his hive, his section box—for he was the first to adopt and patent the section box—and his stove smoker, built to use on side-opening hives and which would smoke all day from one filling.

On one of his trips east, John took a Pennsylvania bride, Mary J. White. They made their home in San Diego county, in the canyon which, through association with him and his beekeeping, was later to bear his name; and there they reared their family.

Harbison became acquainted in the East with the Langstroth hive. Though he liked the movable comb feature, he objected to the rabbets on which they were hung, and to the fact that the frames were not self-spacing, which caused irregularity of comb building. He thought the hive inferior to the one which he was using. But on his return to California he modified his own hive, with the section honey boxes, adjustable frames, and a metallic clamp for fastening the frames. This was the hive he used in his own apiary. It became known as the California hive. Beekeepers all over the state used it successfully until at last the Langstroth hive began to win its way in the far West.

For years, Harbison shipped honey in startling quantities to the eastern markets. In one year he took twenty-three carloads of comb honey from San Diego county. Men were lured by Harbison's golden carloads as had been Harbison himself by the gold mines, and they went to California to keep bees.

Harbison was a frequent exhibitor at the eastern fairs. In 1876 he was awarded a medal for honey exhibited at the Philadelphia Centennial. He was given the highest awards at New Orleans and at St. Louis for the quality of his honey. He spent thousands of dollars in his exhibitions, and in so doing he made the name of John Harbison, of San Diego county, known the world over, and helped to develop California into the honey state that it is.

Harbison's activities, however, were not confined to his beekeeping. He had for many years large orchards of oranges and olives. He was a stockholder in the Harbison Wholesale Grocery Company, and a director of a bank in San Diego.

In 1918 a group of prominent bee men attended a convention in California. They found San Diego county still a "bee belt," with three thousand beekeepers and thirty-eight thousand colonies. They sought out the mountainside and the canyon where Harbison had made his home and had kept his home apiary, and suggested to the county supervisors that the mountain be named after the father of California beekeeping. This action the county officers later took, and the mountain now bears Harbison's name.

Harbison Mountain looms, gray and vast, twenty miles back of San Diego, an enduring monument to the man who founded beekeeping in California. The climate is mild, the sage and the sumac still bloom there, but the bees about the mountain and canyon have fled before the coming of tourists and tourist parks. Within two miles of the Harbison homestead are seventy-five cabins, and the trees which Harbison planted about his dooryard furnish shade annually for hundreds of picnickers

The Bee's Sense of Taste

Prof. K. von Frisch has made a number of experiments on the capacity of bees to distinguish flavors. He finds that the strength of the weakest cane-sugar solution they would take lies between 8.5 and 4.25 per cent. In this matter the bee appears to have a less well-developed sense of taste than ourselves, since we can distinguish as sweet a solution containing only 1 to 0.5 per cent of sugar. Bees that have been feeding on a strong syrup usually refuse a weak one, if offered to them immediately after the other. Experiments with various other sugars showed that bees find dextrose, levulose and maltose sweet, but that lactose, galactose, rhamnose, arabinose, the alcohols mannite, sorbite and dulcite, also the artificial sweet-stuffs, saccharin and dulcian, appear to have no taste for them.

It is interesting to compare the results obtained by Prof. E. F. Phillips (Journal Agric. Res., Vol. 35, page 385). He showed that bees can use glucose (dextrose), levulose, cane sugar, trehalose, maltose and melezitose, but not lactose, galactose, raffinose, dextrin, inulin or starch. Thus some of the sugars and similar substances which are useless to bees are those which von Frisch concludes they cannot taste.

The bee's sense of taste differs from our own in kind as well as in degree. We consider levulose sweeter than dextrose; with the bee it is the other way about. The bee also would not place acids in the same order of sourness as we do.

Bees fill their sacs fuller the higher the temperature and more concentrated the syrup, according to von Frisch. (According to some as yet unpublished work of my own, there is probably an upper limit in both cases.) If salt to the amount of over 0.18 per cent be added to the syrup, the bees reduce the size of their loads. (Erlanger Jahrbuch, VI, 1928.)

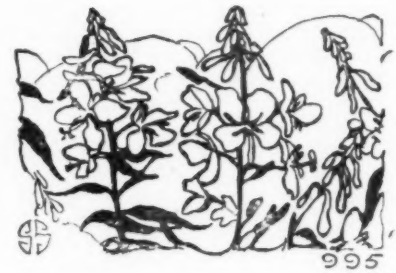
Respiration. Evidence continues to accumulate in favor of the view that the bee (and insects in general) draws in air through all her spiracles, but expires it through the thoracic spiracles only. Buisson Bull. Ac. Roy. Belg., XII, 1926) has recently put forward the above view; and Himmer (Erlanger Jahrb., VI, 1928, page 139) states that experiments made at Erlangen confirm it for the bee. Morison (Qu. J. Micr. Sci., LXXI, page 425) cites several authorities who hold that the flow of air is undirectional, and states that the air probably enters by all the spiracles and emerges mainly through the first pair, through which he demonstrated a strong outward current and a very feeble inward one.

The purpose of the abdominal air-sacs has always been a puzzle. It is clear, on arithmetical grounds (Bee World, II, pages 34, 35, 119), that they do not serve to increase the buoyancy of the bee during flight; and they have usually been supposed to act as reservoirs of air, supplying the bee's needs when she is flying (when her respiratory movements are, presumably, suspended). Demoll has, however, investigated the question, and is of opinion that the sacs serve as a sort of bellows, driving air to and fro as they are compressed by muscular action, and ventilating the tracheal system. A. D. B.

Protect the Bees Over Winter

R. G. Richmond, deputy state entomologist, advises that a survey made shows that Colorado beekeepers lost more than ten thousand colonies of bees last winter, due to starvation, and suggests that preparations be made right now to prevent a repetition. This can be done by leaving enough honey in the hives to assure adequate food. In some parts of the state fifty pounds or a little over should be left, while in other sections eighty pounds will be required for each colony. J. B. Dillon.

Fireweed a Pioneer in Devastated Areas



Wanderers in timbered regions will often come upon great stretches of a tall, loosely branched plant whose summit blazes as with fire. This is the great willow-herb, or fireweed, one of the best of our honey plants, yielding a light honey of extra good quality. Whenever the beekeeper is fortunately located in an abundant fireweed growth he is fairly certain of a crop. However, the permanence of fireweed is not dependable.

It is not called fireweed merely because of the color of its flowers, though that would be warrant enough. The plant is a sort of vegetable counterpart of those otherwise normal mortals who are happiest when they can race after fire engines or watch the battle between flame and water. Fireweed also runs to places where fire has been.

When the forest fire sweeps through the timber and wipes out all plant life, the first crop to appear on the desolated soil is very likely to be a mass of fireweed. Frequently a forest fire scar is taken over completely during the first year or two after the disaster by this plant, which occupies every foot of ground and gives nothing else a chance to grow. Gradually it yields to other things and in the end you will find a stand of aspen or big-toothed cottonwood growing up in the midst of it, and the forest will have started on the road to rehabilitation.

Fireweed is well adapted to this kind of pioneer occupation. It produces millions of seeds, each equipped with a downy parachute like that of a thistle or milkweed. These, launched in later summer on every passing breeze, sow themselves thickly over the whole landscape. If there happens to be newly exposed soil left by recent fire, rich with potash and other salts from the ashes, a big crop of fireweed is of course sure to result.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

WINTERING IN TRENCH

I have nine colonies of bees which I wish to winter over, and I have no cellar and packing is very scarce. I would like to know if it would be practical to winter them in trenches, or a trench, and how to go about it. There is very little slope to the land here, although it is not what you would call low ground either.

This is in the southeast corner of South Dakota and it is too cold for the bees unless they have considerable protection in winter time. The soil here is really a black loam with clay subsoil, and underground drainage is fairly good. I am enclosing a self-addressed envelope and would be very much pleased to hear from you at your earliest opportunity. I am an interested reader of your valuable Journal and would not try to keep bees without it.

Thanking you for past courtesies, I beg to remain,

SOUTH DAKOTA.

Answer—We wintered bees in trenches here in Illinois, for a few winters, years ago. We quit after a very mild winter, when the ground became soaked with moisture and the bees were under unfavorable condition.

We believe that you can winter in a trench in South Dakota, because the weather remains cold till spring. Dig a trench in a comparatively high spot. Make it about three feet deep, with a little slant towards one end, which will go to the level so as to drain whatever water might get in. If you cannot find a spot allowing a slope of three feet, make it shallower, using a greater amount of cover.

At the first hard cold weather, say in November, place your hives in there on some joists. Let them have plenty of ventilation at the bottom, even if you have to raise them from the bottom. After they are in, pile some straw on them, having previously placed some ventilators, made of laths, about an inch square inside, two of these reaching almost to the bottom of the trench and the others only to the top of the hives. Then cover the whole thing with earth, to the depth of a couple of feet, so that you may be sure that it will not freeze in the trench.

It is best to have some supports for the straw and the earth cover, so that the hives will not be disturbed by covering or uncovering the trench.

QUEENLESS COLONIES IN FALL

1. In looking into the hives Monday, we found in two of the hives, on the floor board, a webby-like stuff and some small and large white worms resembling maggots. Are these beemoths, or what? What can be done to get rid of them? We cleaned them out, but don't know what to do to stay rid of them.

2. In one of these hives the bees seem to be eating all their honey up and haven't very much on hand. They have lots of drone-cells—about as many as worker-cells. This is a two-year-old swarm. Please advise us about them and if they are worth feeding and trying to winter.

3. The other of these hives is an old home-made hive and the bees have built the comb crossways across the frames and we want to get them out of the hive. Can we unite these two colonies? When can we do this? Also, shall we put the home-made hive above or below the other hive in order to have it vacated by spring, so we can take it off? Shall we put paper between the hives when we put them together? Would it be well to requeen them, or is it too late for that?

4. Around through the hives there are small spots of pinkish-like wax. Is this any indication of any disease, or doesn't it amount to anything? MISSOURI.

Answer—1. It is quite probable that the hive containing those webs and worms is queenless, otherwise there would not be webs in reach of the bees. The hive should be given a queen, unless it is already too weak to take care of her.

2. This second colony is evidently queenless. You do not say whether there is drone brood in those drone cells, but I take it for granted that there is, and probably from drone-laying workers, which would mean that they have been queenless for some time. It might help to unite this to the first one.

3. The colony will need to be transferred out of the frames and straightened out. But this had better be done in the spring, during fruit bloom, so they can recuperate. You might unite two or all three of those colonies. In that case, better have the last mentioned placed at the bottom of the pile and unite the others to it by the newspaper method. In spring you can give them some of the combs of the others, in an upper story, and when the queen goes up and lays in the combs you can transfer the combs to the main colony.

4. I do not know what you mean by "pinkish wax." It probably is of no importance.

TRANSFERRING IN FALL

I have a few colonies of bees in old hives which I want to transfer to new hives. I have some ten-frame body hives which I used for supers. They are filled with straight combs full of sealed honey, which I intend to use to transfer the bees from the old hives. Should I extract the honey from some of the combs and put the frames back? Would it be advisable to do this work this fall and to requeen the same time as I intend to requeen these hives? But here is another problem: The combs in the old hives are so crooked that I cannot lift the frames out to find the queen.

Thanking you in advance for advice, I remain, Yours very truly,

KANSAS.

Answer—Fall is not a good time to transfer bees. We like to do it in the spring, when they make the first honey, out of fruit bloom, because at that time the combs are the lightest in both brood and honey. Besides, there is less robbing at that time. We transfer all the good combs, even the crooked combs if they are worker-combs and not too old. We publish a small bulletin on that subject, which I am sending you. We sell it for 10 cents.

Some of those combs filled with honey that you mention will do to give the colonies that are transferred, but they should not be given too many combs of honey. They should have some empty combs to breed in. So you had best extract some of the honey.

It is also too late to requeen, at present. You had best wait till next summer to requeen those hives. At that time you can send your orders for queens for the right time and do your requeening without difficulty.

APPEARANCE OF COLONIES IN FALL

1. I have about forty stands of bees in good eight-frame hives. As I was working my bees over for wintering I only found two laying queens from the whole bunch; the other thirty-eight look like they are all queenless. I had no disease here. We had an exceptional dry summer, no rain since July, but there is plenty of water around and all have a reasonable stock of food, but no brood or eggs can be seen.

2. Some of them are poor in food. I have about ten gallons of old candied honey. Can I use this as food, and how?

OKLAHOMA.

Answer—1. It is quite probable that your colonies have queens, but that they have ceased laying for the season, as it is getting late and they may want to save their stores. It is possible that they do not have more than enough for winter.

2. You can use that granulated honey to feed them; but I would recommend that you melt it up in a vessel over hot water. If you happen to need more than that amount of feed, you should make some sugar syrup and add it to the honey. The mixing of the syrup and the honey will make very good bee feed. It is quite probable that, when you feed those colonies that you think are queenless, the queens will begin to lay. Try it.

"QUIET" ROBBING

What is the correct procedure with "quiet" robbing, wherein a strong colony is robbed out without even a fight? This colony has a queen and brood, but is light as a feather, due to persistent "borrowing" by another colony in particular. A stream of bees can be seen traveling back and forth.

An interesting experience this summer fortunately was not foulbrood. The odor in the bee yard was terrible—foulbrood, I thought. I found a mouse decaying in propolis on the bottom board of one of the hives. KENTUCKY.

Answer—Close it up or put it in the cellar for a few days; feed it with some syrup strongly charged with a scent such as peppermint, to change their home odor, and put it in a new place. If you found the robbing colony, exchange them for one another.

Your accident with a mouse on the bottom board is interesting.

REMOVING CANDIED HONEY FROM COMBS

Having quite a number of combs which are to be treated for disease, kindly inform me of the best method of removing the candied honey which many of these combs contain, and a few are very solid.

If these combs are to be placed in a tank of warm water, what temperature will best do the work? NEW YORK.

Answer—1. You will find a very good way to soak combs containing honey in the first article of the September American Bee Journal. However, I would recommend that this be done inside a room, in order that bees may not get to the honey.

2. Do this work at about 80 degrees of temperature, with water at about that temperature.

However, I would prefer, if I owned those combs, to melt them up and boil the honey, so that it could be used. If the wax is saved, there will be but little loss in replacing them with comb foundation, and you will have both the honey and the wax, with less danger of spreading the disease.

RETARDING GRANULATION

1. Will you please tell me how to keep honey from granulating when you put it up for the trade? I am having quite a bit to candy after I put it up in the glass jars, and the grocers, of course, object to this. I see other honey put up in containers that shows no signs of granulating.

2. Would also like to have a recipe for making honey vinegar, as I want to pre-

pare some for the state fair next year. I wrote for Government bulletins on this, but it has been some time, and so I thought you could give me this information.

3. Also tell me how to keep sugar syrup from going back to sugar. I have a few colonies that will have to be fed, and I wish to put in about three ten-pound buckets of syrup before the weather gets too cold, so I will not have to worry about them any more. OKLAHOMA.

Answer—1. All honey granulates in cold weather, and in Europe it is impossible to sell it unless it is granulated. But in this country grocers and beekeepers help to keep up the false belief that granulated honey is impure or spoiled. To keep it from granulating it must be heated for some time to about 140 degrees. Do not overheat it, as you will spoil it.

2. We furnish a recipe for making mead and vinegar. One cannot make vinegar without making an alcoholic drink first. We will include the recipe in this letter.

3. To keep sugar syrup from crystallizing, add about 10 per cent of honey, or add about a teaspoonful of tartaric acid to every twenty pounds of sugar.

NET WEIGHT LAW

I always read with interest "The Editor's Answers" in your Journal, and would like to ask about the laws regarding the stamping of net weight on sections. I am new in the honey business and have always sold my section honey locally, but am producing more than I can sell locally now and want to ship some out. Does every section and carton containing sections have to be stamped with net weight in this and adjoining states? Any information you could give me along that line or advice as to where I could get full details of the law requirements on the matter would be appreciated. ILLINOIS.

Answer—Most states require that the minimum weight (net) of honey in each section be stamped upon the case containing it. I do not believe that it is compulsory to mark each section. But it will pay you to have some stamps made showing the minimum weight, if your honey is likely to go out of the state, especially if your name is marked on the package. It pays to do it. The reason of the law is that many people sell the sections of honey as "pound sections," and they rarely weigh a full pound.

The law concerns only honey coming from outside of the state. The reason why it is difficult to secure copy of all the laws concerning bees and honey is that there are forty-eight State Legislatures and that any of them may change the law at any of their sessions. If a copy was made of the laws, it would soon be out of date—"outlawed," as you might say.

BIG HIVES AND WINTERING

1. I notice in the Journal some Modified Dadant hives advertised with eleven frames. I was under the impression the Modified Dadant contained twelve frames. Do you think the twelve-frame hive too big?

2. In regard to wintering bees in two- or four-colony cases, which in your opinion is the better—the single hives with double walls and chaff in between the two walls, or the two-colony case, or the four-colony case? Remember we have very cold winters here; the thermometer drops to 40 below for a week at a time some winters, yet bees are wintered outdoors.

3. If one is adopting the two- or four-colony case, would it be practical to leave the bees in the cases the year around? Is this done at all? B. C.

Answer—1. We have found that not less than nine frames of the Dadant size should be furnished for the brood space of a good queen. But we have always made our hives with room for eleven frames using usually one division board or dummy, which reduces it to ten frames. You will find the state-

ment at paragraphs 310-311 of the English edition and at paragraph 340 of the French edition. Larger hives are often made, but are not necessary.

2. We have never made four-colony cases. A two-colony case is better, because the bees have their entrance on the south, whcih is very important. We don't want winter entrances on any other side, except perhaps southeast or southwest. If we were keeping bees in your climate, we would probably winter them in the cellar.

3. We do not believe that there would be any harm in keeping the bees in two-colony cases the year around.

BOILED HONEY FOR WINTER STORES

Should the boiling of honey impair its value as or render it unfit for use as winter stores? This boiling shall be necessary in order to destroy American foulbrood bacteria. INDIANA.

Answer—We have never fed honey that had been boiled, for winter. But I would judge that if you add about half of sugar syrup it will help make up for the loss of moisture in the honey and make good bee feed, unless you have burned the honey and given it a taste of molasses. In the latter case, I hardly think that it would do for winter.

O course, honey that has been exposed to fourbrood would not do to feed to bees unless it has been boiled.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

Rock Island County Beekeepers Meet

The annual meeting of the Rock Island County (Illinois) Beekeepers' Association was held at the Lawrence M. Wiess apiaries in Moline. A very nice, entertaining and instructive meeting was held, after which Mrs. Wiess served a fine lunch.

Six new members were taken in at the meeting. We have not lost a member in the past year and now have thirty members.

S. F. Peterson, Secretary.

Big Honey Display at Oregon State Fair

That bees are staging a "come-to-the-front" campaign in Oregon was very evident at the Oregon State Fair, held at Salem from September 23 to 28. The largest bee and honey exhibit ever displayed at this fair was shown this year.

An interesting feature of the display was the arrangement of the honey and bee booth. No partitions divided the individual showings of the ten exhibitors. The whole made a very impressive display.

The excellent display of the fireweed honey was the outstanding feature of the honey exhibit. This ranged in color from water-white to light amber. The water-white honey particularly attracted the attention of visitors from middle western and eastern states.

In speaking of the honey situation in Oregon, S. D. Williams, of Portland, who was in charge of the apiary booth at the fair, said that Oregon does not as yet produce all the honey it consumes. But, he continued, bee culture is increasing rapidly now. Wherever new irrigation projects are established, and many are now being opened in the eastern part of the state, there is a marked increase in beekeepers. Oregon's large quantity of alfalfa and sweet clover honey comes from these sections.

Some of the beekeepers reported an average flow of two hundred pounds a hive during the fireweed season, which runs from July 1 to September 1. Oregon should be a good honey state, exhibitors pointed out, for frequently bees begin work here with the appearance of the pussy willows in February and continue nito late autumn.

A very fine display of pastries and fruits canned with honey added to the interest of the show.

In the alfalfa and sweet clover comb honey display, John Goodman, who has six hundred hives at his Ontario, Oregon, apiary, won first prize, with E. F. Glaser, of Jefferson, a close second. In the extracted clover honey division, Mrs. E. F. Glaser, of Jefferson, won first, with W. L. Arant of Forest Grove, S. D., William and W. H. Pennington of Portland placing second, third, and fourth, respectively.

F. E. Smith, of Dallas took first in fireweed comb honey, Mr. Arant and Mr. Pennington placing second and third. In the extracted fireweed honey class, W B. Thomas, of Portland, placed first, with Mr. Arant, Mr. Pennington and Mr. Williams following.

Mr. Pennington took first in the comb honey not otherwise classified, and Mrs. Glaser took first in the extracted honey of this group.

The soft, bright yellow beeswax of Mrs. Glaser's won first in the wax division. Mr. Pennington placed first with his honey vinegar. Hans Rehb, of Salem, captured first prize in the single comb nucleus three-banded Italian bees, and L. J. Dame, of Portland, first in the single comb nucleus golden Italian bees.

Lillie L. Madsen.

Ontario's Golden Jubilee

On November 26 to 28, at the Prince George Hotel, Toronto, Ontario, the fiftieth meeting of the Ontario Beekeepers' Association will take place.

One of the oldest beekeepers' associations on the North American continent, we are looking forward this year to a rousing convention.

The Ontario Beekeepers' Association invites beekeepers from other provinces and from every state in the Union to meet with us and assist us to celebrate our semi-centennial meeting.

During the past fifty years there have been remarkable changes in the beekeeping industry. From an uncertain sideline the industry has developed to a commercial undertaking and many of our members now measure their crop by the ton in place of pounds.

One very interesting phase of the convention will be the addresses, by men who are able to recall many of the changes which have taken place during the last half century.

A number of men well known in the industry have promised to meet with us, and we can assure every visitor that he or she will find a hearty welcome, and we believe that an enjoyable social and instructive time will be spent during the three convention days.

An added feature is the Royal Winter Fair, which is being held in Toronto during the whole week in which our meeting occurs.

The Royal Winter Fair is fast approaching the tremendously successful efforts of the Canadian National Exhibition in making the Royal an outstanding event. You will enjoy our convention and you should not miss the Royal.

Reduced railway fares from all parts of Ontario and border points.

Ask us to mail you a program and then plan a family outing. There is lots of interest in the cit yof Toronto for those who do not have a bee in their bonnet.

F. Eric Millen, Sec'y-Treas.

Meeting of Apiary Inspectors of America

The second annual meeting of the Apiary Inspectors of America will be held at Milwaukee during the meeting of the American Honey Producers' League, early in February, 1930.

Since the meeting at Sioux City, Iowa, last February, the secretary has received letters of endorsement from a majority of the states doing inspection work. The only exception taken to any of the eight resolutions passed was in regard to the resolution opposing the collection of a special per colony tax. One of the state inspectors said that without this tax his state could not do inspection work. It is interesting to note that

this resolution was offered and sponsored by representatives of states having such a tax. This question will probably come up for discussion at the next meeting.

The one resolution that seemed to appeal to all who have had actual experience in the work is the second one, which reads: "That colonies of bees diseased with American foulbrood should be burned upon their discovery by an inspector."

The president, Dr. R. L. Parker, of Manhattan, Kansas, would be glad to hear from any inspectors who have any suggestions as to the work that should be taken up by the association.

Following are the recommendations of the Apiary Inspection Committee:

1. That J. I. Hambleton be commended for his stand in discontinuing Bulletin 1084, "Control of American Foulbrood."
2. That the international organization of state apiary inspectors, viz., Apiary Inspectors of America, be endorsed.
3. That this organization go on record as recognizing the burning of diseased colonies on the spot as the only known successful eradication method for the use of our apiary inspection services.
4. That more careful records be taken by the states showing bee population, number of apiaries and number of beekeepers.
5. That our inspection records show in detail the number of colonies inspected, the number of colonies diseased and the disposition made of diseased colonies.
6. That honey from diseased colonies be destroyed.
7. That a uniformity of laws, methods and records be introduced amongst our members.
8. That the secretary of agriculture be urged to establish an apicultural field station on the Pacific Coast for studying the unique problems of this section.

C. D. Adams, Secretary,
State Capitol, Madison, Wis.

Alabama Two-day Meeting

J. M. Robinson, secretary-treasurer of the Alabama Beekeepers' Association, Auburn, Alabama, announces a two-day meeting of this association at Montgomery, Alabama, on Nevember 7 and 8. Among other speakers will be L. T. Floyd, of Winnipeg, Manitoba.

Mr. Robinson is anxious to have as full representation as possible at the meeting, and invites both Alabama beekeepers and those from outside the state to attend.

Price Leaves Indiana for Kentucky

Mr. W. A. Price, who has been with Prof. J. J. Davis in the Department of Entomology at Purdue University, Lafayette, Indiana, in the beekeeping work, has left to accept a position as head of the Department of Entomology of the Kentucky State University, at Lexington, Kentucky. Our best wishes in his new position.

Professor Price's sympathy with beekeeping is in Kentucky's favor. We expect to hear more about bees in that state.

B. E. Montgomery Appointed for Indiana

Mr. B. E. Montgomery has been appointed to fill the vacancy left by the resignation of Prof. W. A. Price in the beekeeping work under Prof. J. J. Davis at Purdue University, Lafayette, Indiana.

Mr. Montgomery will give insrtuction in entomology and beekeeping. He graduated from Oakland City College and took his master's degree at Purdue University, since which time he has been doing graduate work towards a doctor's degree at the Iowa State College.

For several years Mr. Montgomery has worked in Federal entomological laboratories, but he is much interested in beekeeping, and we are glad to welcome him among the officials of our industry.

Slight Change in Date of American Honey Producers' League Convention

It has been decided to make a slight change in the date of the American Honey Producers' League convention to be held at Milwaukee, Wisconsin. Present plans call for the meetings to begin on Tuesday, February 4, and extend to the afternoon of the sixth, instead of beginning the meetings a day earlier, as was stated in a previous announcement. The change was made so that the American Honey Institute officials might have their meeting on Monday, the third, preceding the League convention.

Speakers of prominence are being secured for the program and it is anticipated that all organizations interested in the welfare of the bee industry will be represented. Judging from the list of names of those who have already signified their intentions of taking part, the success of the program is assured.

The program of the American Association of Apiary Inspectors, which will meet at the time of the League convention, is being arranged by Dr. R. L. Parker, chairman of this association, Manhattan, Kansas, and it is expected that their plans will soon be ready for announcement.

Reduced Rates Granted

The various railroad companies of this country and Canada have granted a rate of fare and one-half, based on the certificate plan, to those attending the Milwaukee meeting of the American Honey Producers' League. This plan, to be successful, requires certificates to show that at least one hundred and fifty beekeepers have bought fares to the Milwaukee convention. In this connection, it might be mentioned that this number is one hundred less than the railroads required in previous years. Each beekeeper who has occasion to travel by train to the Milwaukee meeting should observe the precaution to secure a certificate or receipt at the time of purchasing his railroad ticket.

Prof. H. F. Wilson, of Madison, Wisconsin, who has charge of local arrangements, has advised this office that Hotel Wisconsin, Milwaukee, has been selected for the League convention and banquet.

Honey Exhibit

Arrangements have been made with Mr. James Gwin to take care of the third National Honey Exhibit held in connection with the League convention. All shipments of honey for this exhibit should be directed to Mr. James Gwin, in care of the Hotel Wisconsin, Milwaukee, Wisconsin. At the time of the shipment, notification of such shipment should be sent to Mr. Gwin, in care of the Department of Markets and Agriculture, State Capitol, Madison, Wisconsin.

Annual Meeting of Oregon State Association, November 4-5

Draw a line around those dates and keep them in mind. All the beekeepers of Oregon, and especially the commercial producers and inspectors, should plan to go to this meeting. A special invitation is extended to the beekeepers of eastern Oregon to attend

Already several beekeepers from Union, Baker and Malheur counties have promised that they will come. There will be several out-of-state speakers and consideration of the questions of inspection and registration, honey marketing, experiment station for the west coast and other problems of common interest.

President of Oregon Association Passes On

The beekeeping industry of Oregon suffered the loss of one of its most dependable supporters in the death of President B. I. Ferguson, who passed away at his home near Salem on August 10. Mr. Ferguson has been engaged in beekeeping and fruit growing in the Willamette Valley for more than thirty years. He was one of the charter members of the Polk County Beekeepers' Association and served that organization as president.

For several years he has been superintendent of the bee and honey exhibit of the Oregon State Fair and has been largely responsible for

building that exhibit up to its present excellent condition. He also served the State Beekeepers' Association as chairman of the Department of Education for several years, and in 1918 was elected president.

Arizona State Fair Commission Generous With Premiums

Through the kindness of H. B. Skinner, superintendent of the Apiary Department of the Arizona State Fair, we have a copy of the premium list, where it is noticed that the State Fair Commission has offered premiums to the amount of $362 for the year 1929. This is certainly a generous amount and the beekeepers of Arizona should take full advantage of the opportunity.

The classes include bees in observation hives, comb honey by source, chunk honey and extracted honey also by source, beeswax, honey display, honey plants, hives, and honey products. Premiums range from $20 down to $3, for firsts.

The 1929 fair will be held at Phoenix on November 11, 12, 13, 14, 15, and 16. Those interested should communicate at once with H B. Skinner, superintendent of the Apiary Department, Arizona State Fair Commission, Phoenix, Arizona.

Convention of California State Association at San Diego, December 11, 12, 13

Delegates of ths meeting will visit in one of California's beauty cities. They will be particularly interested in the harbor, a natural basin, which "comes right uptown," within a dozen blocks of the heart of the business district.

Many delegates will come by boat, which will be a particularly sightly way of reaching the convention city. A good time is promised. San Diego has come to be one of the Coast's most famous convention cities. The people do anything possible to give attendants a good time, so all aboard for San Diego.

Fred Hanson.

All Hail to Our Cooperative!

Mountain States Honey Producers' Association Granted Commodity Loan by New Federal Farm Board

The Federal Farm Board announces that it has granted supplemental commodity loans to the Mountain States Honey Producers' Association, Boise, Idaho, a farmers' cooperative organization with members in the eight states of Montana, Wyoming, North Dakota, Minnesota, Utah, Idaho, Oregon, and Washington. The total of these loans will not exceed $135,000.

The Board is advancing 1¼ cents per pound to supplement the Federal Intermediate Credit Bank, Spokane, Washington, loan of 4 cents on honey stored in inland warehouses and 5 cents on honey in terminal warehouses. On honey so stored and sold on contract the Board is advancing 2¼ cents to supplement loans made by the Intermediate Credit Bank. These loans are on a basis similar to that for the supplemental commodity loans being advanced to wheat, cotton, rice and other farmers' cooperative associations which have qualified for loans from the intermediate credit banks.

The application of the Mountain States Honey Producers' Association was presented to the Board by Mr. A. W. B. Kjosness, general manager, Boise, Idaho; Mr. O. A. Lendee, official counsel, Minneapolis, Minnesota, and Mr. Donald G. Hamilton, adviser and counsel, Columbus, Ohio. It was represented to the Board that the association expects to market three hundred cars, or nine million pounds, of honey this year.

(This is a tribute to the thorough organization which this great cooperative has set up. The Farm Board is authorized to loan to farmers' cooperative organizations, which meet with approval, sums of money for their support and for their success. These loans are made on such a basis that they are no burden to the associations.

We predict that this is the beginning of large cooperatives in this country, and it is certainly a tribute to beekeeping that it is among the first industries to receive recognition. —Ed.)

Let Every Man Defend Himself

In the September number, on page 465, Mr. Gridley discusses the use of foundation in shaking diseased colonies. Now a letter from Frank E. Todd, in charge of apiary inspection in California, calls him to account because, he states, "Mr. Gridley claims ten years ago he had 700 clean colonies, while now he has only 427, according to the July inspection, the number presumably having been reduced by disease, since inspection reveals a large amount."

So, Mr. Todd wonders if the method Mr. Gridley gives is successful, since it must be admitted that it has not succeeded in cleaning his own bees.

Apparently our numerous items about disease are stirring up either interest or defense. Let every man defend himself.

Iowa Produces Two New Extension Bulletins

(1) "Preparation of Honey for Sale." This is an instructive discussion of crop removal, extracting, cleanliness, storage, flavors, heating, containers, grading, handling comb honey and bulk honey, and the disposal of off-grade honey. Ask for Bulletin No. 152 of the Iowa State College, Ames, Iowa.

(2) "Control of Bee Diseases and Pests." The usual description of diseases and treatment, including newer methods of sterilization. Also the miscellaneous diseases of the larvæ and of the adult bees, including an account of apiary pests, such as moths, ants, and the bee louse. Copies may be obtained from the same address. Both bulletins are by F. B. Paddock.

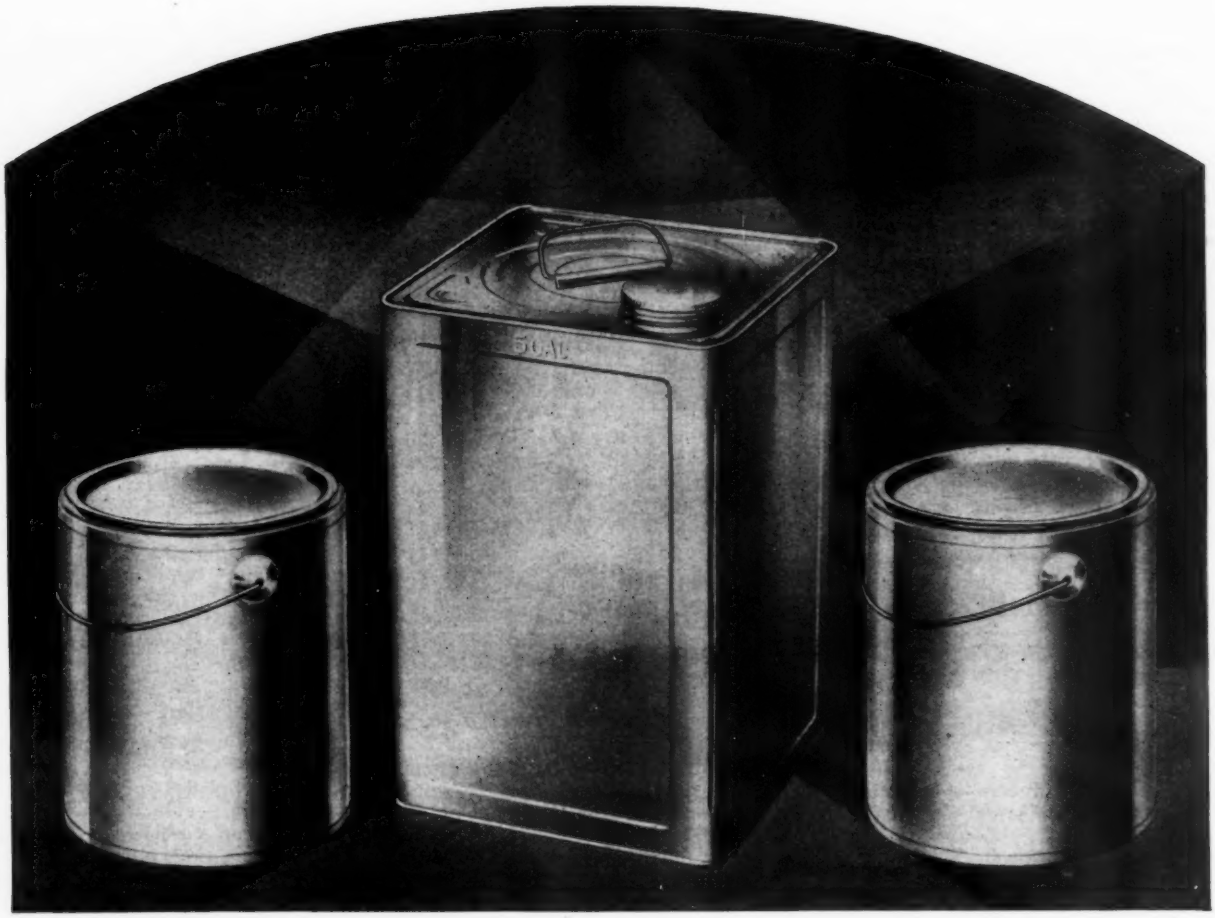
"Beyond Even the Microscope"

This is the title of a brochure distributed by the Warren-Teed Seed Company, Chicago, Illinois. Our readers may remember Harry R. Warren, at one time a large beekeeper in the West, producing comb honey. He was called at one time, in a write-up about him, a "comb honey wizard," because he was able to produce such large crops. He was an exceptionally skillful beekeeper.

During the years of his beekeeping, Warren became interested in the practical problems of seed production. He was especially impressed with the fact that most farm seeds are sad mixtures. Even though seed is sold as pure, it contains appreciable amounts of weed seeds and other undesirable seeds mixed with it. Warren thought there should be some way of separating them so they would be absolutely pure. The idea of separation by specific gravity, or by floating the seeds at proper levels in a prepared liquid, where they would remain apart simply by their own weight, was finally conceived and has since been worked out into a seed cleaning process of remarkable efficiency.

It takes tremendous equipment and great cost to clean seed by this process, but the plant, situated at 526 West Eighteenth street, Chicago, is equipped to handle immense quantities, separating the weed seed and other undesirable seeds in such a way that great benefit is obtained. Those who appreciate the mixtures which occur even in the best of seeds under present methods of separation will appreciate what it means.

The booklet mentioned is a wonderful piece of work produced by Will Howell and associates, Chicago, and it has been distributed quite generally to those interested in seed production. A copy might be obtained by inquiry from the company.



Continental Honey Containers

These clean, bright, tight cans will help you sell more honey. They make a strong appeal to your customers and assure the Honey reaching them in excellent condition. Made in several styles and sizes to meet your needs. Complete information, prices, terms or samples may be secured through any of the distributors listed below or any of our offices.

These Distributors Are Ready to Serve You:

The Brock Store
Decatur, Ind.

A. G. Woodman Co.
Grand Rapids, Mich.

The Carl F. Buck Co.
Walla Walla, Wash.

Mountain States Honey Prod. Ass'n.
Boise, Idaho

The A. L. Boyden Company
Los Angeles, Cal.

The A. L. Boyden Company of Seattle
Seattle, Washington

Lone Star Bee Supply Co.
San Antonio, Tex.

Superior Honey Co.
Los Angeles, Calif.
Manhattan, Mont.

Dadant & Sons
Hamilton, Ill.

North Dakota Bee Supply Co.
Moorhead, Minn.

G. B. Lewis Co.
Watertown, Wis.
Albany, N. Y.
Sioux City, Ia.
Lynchburg, Va.
Texarkana

J. W. Reid
Uvalde, Tex.

Burrows Hdwe. Co.
Beeville, Tex.

Standard Lumber Co.
Winona, Minn.

Magill & Co.
Fargo, N. Dak.

Sioux Honey Ass'n
Sioux City, Ia.

The A. I. Root Company
Medina, Ohio

The A. I. Root Company of Iowa
Council Bluffs, Iowa

The A. I. Root Company of Texas
San Antonio, Texas

A. I. Root Company
St. Paul, Minn.
Chicago, Ill.
Syracuse, N. Y.

The Schultz Honey Co.
Ripon, Wis.

Fred W. Muth Co.
Cincinnati, Ohio

Colorado Honey Producers Ass'n.
Denver, Colorado

M. H. Hunt & Son
Lansing, Michigan

CONTINENTAL CAN COMPANY, INC.

4622 West North Avenue, Chicago, Ill.

DETROIT JERSEY CITY LOS ANGELES ST. LOUIS CINCINNATI

"It's Better Packed in Tin"

Crop and Market Report

Compiled by M. G. Dadant

For our November crop and market page, we asked reporters to answer the following questions:

1. How is the final crop compared to 1928?
2. How is honey moving?
3. Any tendencies to cut or advance prices?
4. Do you think the 1929 crop will move at prices at least equal to 1928?

FINAL CROP

We have little different to report from the crop report in the October issue of the American Bee Journal. The New England States have fared very well this year, having more honey than a year ago. New York will about play even. The Atlantic Coast is under last year's production, with Georgia an exception. Georgia will have at least 100 per cent and perhaps 110 per cent of last year. Florida, Alabama, Missississi and Louisiana, also Texas, are universally short, the amount ranging from 50 to 75 per cent of last year.

Ohio, Indiana, Illinois, Missouri, Michigan, Wisconsin, Minnesota and North Dakota all report better crops than a year ago. Iowa seems to have had a much better crop than the central areas and portions of the eastern section, but the northern tier of counties and the Missouri Valley have had much under a year ago. South Dakota is about normal; Nebraska is only 70 per cent of last year; Kansas, Oklahoma and New Mexico are all from 120 to 140 per cent of last year. Arizona is very short. Colorado will have considerably more honey than a year ago, with Nevada a little short and Utah about normal. Idaho is having a short crop, as is Montana, on account of the very chilly weather, and Oregon and Washington will have about a normal crop or a little better.

Perhaps California will equal last year's crop and in some sections get more, but the southern areas will undoubtedly have less than last year, with a very poor crop.

In the Canadian provinces of Ontario and Quebec, Quebec reports an excellent crop, much better than last year, and the prairie provinces are short. British Columbia will about play even with a year ago.

HONEY MOVING

In some sections, honey is not moving as readily as a year ago, largely on account of the very warm weather we have had up to the date this report is being written.

In other sections the demand has been remarkable. We believe that the demand in a jobbing way has been far better than a year ago, and this is reflected in the price. The retail demand is perhaps about equal, the country over, to what it was a year ago.

The only exception is in southern areas, where the demand is very short owing to bad conditions. This is especially true in Florida and Texas. Undoubtedly some of these sections will have to carry over a considerable amount of honey or else seek outside for their sales. There is not a doubt but what cosniderable of this honey could move into the northern trade if the price could be cut to move it. However, some southern areas, for instance Louisiana, are reporting a short crop and a possibility of selling additional honey to their own trade there.

Generally reports of the jobbers of honey are to the effect that honey is from ¼ to ¾ cents a pound higher than it was a year ago and the demand steady. The Bureau of Crop Estimates, however, reports one phase which is not favorable, and that is that the exports of honey during August were nearly a million pounds less than they were in August, 1928.

However, this is no criterion, as there may be a reversal of this movement during September and the latter fall months. The reports on this movement always come in nearly two months after the shipment has taken place.

CUTTING PRICES

A lot of reports of cutting prices in Texas and also in Florida, which seem to be the worst flooded of all the southern states.

We hear reports of price cutting in many instances in the North, but usually in isolated cases, and part of these caused by the low prices of chain stores.

All in all, there has been very little price cutting and a tendency to hold to last year's retail prices on packages, and to advance, if anything, on jobbing price in five-gallon cans. Ontario honey will move at the same figure or better than last year, and the western provinces expect to readily dispose of their crop, which is short.

CROP MOVEMENT

Florida, Texas, and some sections of Indiana where the crop has been exceptionally large, as well as some isolated cases in Wisconsin, report perhaps a difficulty in disposing of the entire crop before the 1930 season comes on.

The bulk of the producers, however, are in a position to be able to dispose of all honey in a rapid and satisfactory manner and have the market bare long before the new honey is ready to be taken off.

All in all, we see no reason why optitmism should not prevail in all places except, perhaps, in the South, and this is undoubtedly due partially to faulty marketing. The intermountain section undoubtedly will profit by the loan made to the Mountain States Association by the Federal Board, which will allow advancing payments on all car lots of honey which have been stored in properly recognized warehouses.

The fruit crop is at least as short as was first reported, and central western sections have forced their entire crop into the retail channels by this time without any flood of the market anywhere. As a matter of fact, fruit has moved more readily than in many years past and in many instances is ready for the shipment of western fruit to the central market. This in itself should be a desirable condition for the sale of honey for replacement of fruit in many instances.

Classified Ads That PAY

This Is Your Market Place

—where you may buy, sell or exchange at moderate cost — only 7 cents a word. Count each word of your message, including name and address. Our advertisers tell us: "IT PAYS." Send your ad for the very next issue now to reach us by the 15th. Terms: Send remittance with copy and order. Minimum ad ten words.

Only **7c** *a word*

You Sell Quicker by Telling More

Ads as small as ten words, costing only 70c, are accepted here, but our regular advertisers have demonstrated that it pays to tell more. Use enough words to thoroughly describe your offering and you'll sell quicker. Address all orders or inquiries to the Classified Advertising Department of the American Bee Journal, Hamilton, Illinois.

Will sell your Honey, Flowers, Poultry, Fruit, Pets (as rabbits, etc.) and more . . . . Is your ad here?

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

BEES AND QUEENS

TWO THOUSAND two- and three-pound packages of young pure three-banded Italian bees and queens for shipment April and May, 1930. Write for prices. W. D. Achord, Fitzpatrick, Ala.

"SHE-SUITS-ME" Italian queens. One 80c; six, $4.00. Send for circular. See advertisement in January issue. Allen Latham, Norwichtown, Conn.

SAME OLD PACKAGE—Two pounds Italian bees, two combs (Hoffman frames), young Italian queen laying, to you. Same old price—six dollars per single package. Same old terms—one-fifth down to book order. May delivery, f. o. b. Same old Jes Dalton, St. Francisville, La.

TESTED QUEENS—For the winter months. Queens for sale any time, sent anywhere; $1.00 each. Send the order, get the queen, save the colony. D. W. Howell, Shellman, Georgia.

PACKAGE BEES—Special price for 1930. Price list free. The Crowville Apiaries, J. J. Scott, Prop., Winnsboro, La., R. 1.

PACKAGE BEES AND QUEENS—Jasper Knight, Hayneville, Ala.

SUNNYLAND BEES ALWAYS PLEASE. Inquiries solicited. Crenshaw County Apiaries, Rutledge, Ala.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1, $1.00. Tested, $2.00. A. W. Yates,
15 Chapman St. Hartford, Conn.

HIGHEST grade Italian queens—Tested, $1.50; untested, 75 cents. Package bees, one pound, $1.50; two pounds, $2.50; three pounds, $3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed.
T. L. Davis, Buffalo, Leon Co., Texas.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, $1.50; twelve, $14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

FOR SALE

GREAT BARGAIN—Immediate sale at 50c on the dollar: 30 new Modified Dadant hives, 40 new extracting supers, foundation for both supers and hives, 60 colonies of bees in standard hives, 150 extracting supers, 75 comb honey supers, 50 queen excluders and lots of other miscellaneous equipment, such as tools; two new two-frame extractors. All must be sold, including this year's crop of honey still on hives and one Ford truck. Inventory value less this year's crop of honey, $1600. Sale value with this year's crop, $900. Write or see Fred J. Quade, Holtwood, Penn.

FOR SALE—600 colonies bees with extracting equipment, fully equipped; located in the heart of the sweet clover belt of North Dakota. No disease. Reason for selling, other interests. Write F. S., care Bee Journal.

THIS means honey for you. I have large, strong, heavy-rooted vitex trees. Some of them bloomed this year. Also seed for sale. Joe Stallsmith, Galena, Kans.

100 COLONIES bees. Health guaranteed. Leo Bear, Grand Forks, N. Dak.

FOR SALE—Chinese "vitex" trees. Bloom from spring until frost. Wonderful nectar feed for bees. Prices, one foot, $1.00; two feet, $2.00; three feet, $3.00. Two- and three-foot trees bloomed this summer. Will book orders for fall shipments now. Adam Scott, 825 Range Line Ave., Joplin, Mo.

ANY part of 80 colonies of bees. Guaranteed free from disease. George Pillman, Centaur, Mo.

APIARY with fixtures for sale to the highest bidder. If interested, write N. Staininger, Charter Oak, Iowa.

FOR SALE—Eleven colonies ten-frame, average 185 pounds; 16 deep supers with combs, some shallow supers, foundation, excluders, etc.; two-frame Root extractor. Health certificate. Everything $145. Fred Hammerly, Albany, Wis.

FOR SALE—In sunny California, 160-acre ranch; 90 colonies of bees, free from disease; worlds of equipment. New extracting house. No crop failures. All implements go with ranch. Five-room house, furnished; just move in and go to work. All for $3500; $2500 cash, balance easy payments. Am selling on account of my having to take charge of my father's ranch in Iowa. J. B. Hohmann, Stony Ford, Calif.

FOR SALE—Fifteen colonies pure Italians in two- and three-story hives; also extractor and equipment. Write for particulars. Walter M. Johnson, Box 62, Jemison, Alabama.

HONEY AND BEESWAX

FOR SALE—Choice extracted white clover honey at 10 cents, and choice white and sweet clover blend at 9½ cents, in 60-pound cans, two cans per case. Sample 10 cents. Emil J. Baxter, Nauvoo, Ill.

CHOICE clover honey in new 60-pound cans. W. H. Mays, Goshen, Ind.

WATER WHITE extracted, in case, ton or carload. Use no capping melters. Sample 15c. George Seastream, Moorhead, Minn.

CHOICE extracted and chunk honey. Henry Stewart, Prophetstown, Ill.

WANTED—Strictly graded white clover comb honey, 4¼-⅞, wood glass front cases. State quantity and lowest price delivered Chicago. Also extracted. A. L. Haenseroth, 4161 Lincoln Ave., Chicago, Ill.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

COMB, extracted and chunk honey in ten sizes glass containers and 2½, 5-, 10- and 60-pound tins. Livest labels in U. S. or plain. One of our special display cases with $25 and $50 orders. Write for free illustrated circular showing our packages and free samples of honey. Griswold Honey Company, Madison, O., U. S. A.

WANTED—Honey, either comb or extracted. Write us if you have surplus honey to market. We can use any quantity. Sioux Honey Association, Sioux City, Iowa.

CLOVER HONEY—120 pounds in case, 9c per pound. Sample 15 cents. Sylvester Legat, Spring Valley, Ill.

FOR SALE—Finest white clover chunk and extracted in 5- and 60-pound tins. Joseph H. Hoehn, Ottoville, Ohio.

FINE quality white clover honey in new 60-pound cans, one to a case, 10 cents per pound. John Thompson, Lloyds, Md.

FOR SALE—Best quality chunk honey, in any size container, also in shallow frames. Frank Bornhoffer, Tobasco, Ohio.

FOR SALE—Finest quality white clover honey, $10.50 a case. Sample 20 cents. Martin Carsmoe, Ruthven, Iowa.

FOR SALE—Light amber honey from clover and goldenrod. Lewis Klaty, Carsonville, Michigan.

FOR SALE—White clover honey in 60-lb. cans. Prices on request. John Olson, Davis, Illinois.

CLOVER and clover-buckwheat blend extracted honey and favor 8 and 9c case lots. D. H. Morris, Swanton, Ohio.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

CLOVER HONEY—Comb and extracted. Dr. E. Kohn & Son, Grover Hill, Ohio.

FOR SALE—60,000 pounds very light, heavy body Michigan clover honey. Sample 10c. Under 1,000 pounds, 9½; over, 9c, f. o. b. Portland. Ralph E. Blackman, R. 4, Portland, Mich.

HONEY WANTED—Small or large lots, white or extra light amber grades, in 60-lb. cans. Send samples, state quantity and lowest N. Y. delivered prices. Also can use white comb if state section size, and style packing cases, with delivered price.
Arthur H. Hoffman, Inc.,
Richmond Hill, N. Y.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

FOR SALE—Extracted clover honey by pound, ton or car. Sample 15c. Victor Apiaries, Chaffee, N. D.

EXTRA heavy body, water-white sweet clover honey, any quantity in pails or 60's. Sample 10c. C. S. Engle, 1610 Fourth Ave., South, Fargo, N. D.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

WHITE CLOVER comb honey, packed eight cases to carrier. W. L. Ritter, Genoa, Ill., DeKalb County.

FOR SALE—No. 1 clover comb honey, $4.50 per case; No. 2 clover and dark comb, $3.00 per case of 24 sections. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Fifty tons northern New York white clover extracted, in new sixties, 10c. Write for sample and price on car lots. Leroy C. Keet, Watertown, N. Y.

FOR SALE—White clover honey with true white clover flavor, in new 60-lb. cans. By golly, it's good. Price and sample. J. W. Bittenbender, Knoxville, Iowa.

CLOVER honey of finest quality in 2½-lb., 5-lb. and 10-lb. pails and 60-lb. cans. Write for prices. Canford's Honey Farm, R. 2, Rockton, Ill.

CHOICE clover honey, comb and extracted. Write for quotations. M. Larson & Son, Box 144, Gardner, Ill.

FOR SALE—Clover honey in 60-lb. cans. Sample and prices on request. E. C. Rasmussen, Exira, Iowa.

MICHIGAN HONEY—Fine quality clover in new sixties, 9c per pound, f. o. b., any quantity over half ton. Howard Potter, Jr., Ithaca, Mich.

WANTED—Honey, carloads or less. Van's Honey Farms, Hebron, Ind.

FOR SALE—A car or two of extracted clover honey. Roy Littlefield, Exira, Iowa.

FOR SALE—Straight white clover comb, also extracted. Sample 20c, to apply on first order. C. Holm, Genoa, Ill.

FOR SALE—Clover honey, comb and extracted. Prices on request. Rocke Bros., Eureka, Ill.

FOR SALE—Extracted honey in 60-lb. cans. Henry Hettel, Marine, Ill.

HONEY WANTED—State quality and price. A. M. Applegate, Reynoldsville, Pa.

BUCKWHEAT comb honey. No. 1, per case, $3.50; No. 2, $2.50. Buckwheat and clover mixed same price. F. J. Smith, Castalia, Ohio.

FINEST white clover honey in 60-lb. cans and 10-lb. pails. State quantity wanted. Andrew Schuster, Platteville, Wis.

FOR SALE—Quality light amber and amber honey in 400-lb. new oak barrels. P. W. Sowinski, Fort Pierce, Fla.

WINKLER'S clover honey in new sixties. Write for price. Winkler Honey Co., Joliet, Ill.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

EXCELLENT quality, straight white clover honey, extracted and chunk comb, any pack, priced right. Ohmert Honey Company, Dubuque, Iowa.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Morrison, 1235 Lincoln Way West, South Bend, Ind.

HONEY FOR EVERY PURPOSE—We have it in any amount; light amber and white clover, basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. I. Root Company of Chicago, 224-230 West Huron Street, Chicago, Illinois.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Illinois.

STURDEVANT'S CLOVER HONEY — St. Paul, Neb. Any quantity.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE — White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices.
Dadant & Sons, Hamilton, Illinois.

SHALLOW frame white comb honey and white extracted honey.
The Colorado Honey Prod. Ass'n,
Denver, Colo.

FOR SALE—Northern white, extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

NEW CROP white clover extracted and chunk comb honey. Write for sample and prices. Kalona Honey Co., Kalona, Iowa.

SUPPLIES

FOR SALE—Used 60-pound honey tins, two to case, 70c. A. L. Haenseroth, 4161 Lincoln Ave., Chicago, Ill.

60-POUND used cans special. Can supply 500 cases practically new cans, mostly large cap openings, dry heated, not rusty, at special price 25c case while they last. Order quick; payments on arrival. Arthur H. Hoffman, Inc., 1043 Wyckoff Ave., Brooklyn, N. Y.

WANTED

WANTED—To trade $2,000 equity in seven-room house for apiary. Owner, 2329 N. Sixty-fourth St., Omaha, Neb.

WANTED—Experienced bee man to operate on share basis 544 colonies season 1930. Give age, experience, references. Mrs. A. E. Shellhorn, Huntley, Mont., Box 23.

WANTED—Position by experienced producer for 1930 or an outfit on shares. What have you to offer. Charles Hotopp, Racine, Minn.

WANTED—To buy or lease bees and equipment in the Dakotas. Wesley Foster, Boulder, Colo.

WANTED

Experienced and inexperienced men of good habits, for our extensive package bee and queen business, season 1930. Must be aggressive and honest, with a willingness to assume responsibility to the extent of your ability. If appreciative of good treatment, fair wages, and desire employment with a going concern fully equipped and up-to-date, write fully, first letter.
Jensen's Apiaries, Crawford, Miss.

BEEWARE, Dadant's wired foundation and "Canco" cans for the Northwest. Catalog prices f. o. b. Fromberg, Montana. Write for prices. B. F. Smith, Jr., Co., Fromberg, Montana.

MAKE queen introduction sure. One Safin cage by mail, 25c; five for $1.00 Allen Latham, Norwichtown, Conn.

100 USED eight-frame comb honey supers, complete. Size 3⅝x5x1½; plain; 50c each. Ohmert Honey Company, Dubuque, Iowa.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000.
Superior Honey Co., Ogden, Utah.

FOR SALE—Foundation, bee brushes, comb honey cartons, feeders, nailed and painted bodies, bottoms, covers, and bodies, veils, sections, a big assortment of frames, excluders, comb and extracting supers k. d., and many other items in good, usable condition. Reason for selling, items no longer listed in our catalog. Prices the lowest anywhere for the value. You can address G. B. Lewis Company, at Watertown, Wis., Albany, N. Y., Lynchburg, Va., Texarkana, Ark., or Sioux City, Iowa.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly.
The Colorado Honey Producers' Ass'n,
Denver, Colo.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.
Dadant & Sons, Hamilton, Illinois.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, 'Il Systema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price $1.00.

RABBITS

IF you are looking for A No. 1 stock Chinchillas, standard and heavyweight, black silver fox fur rabbits, write for prices.
Lieske's Rabbitry, Box 155, Fairwater, Wis.

MISCELLANEOUS

SELL IT—Honey or bees or queens or second-hand equipment or pet stock or poultry, by advertising it in Gleanings in Bee Culture, Medina, Ohio, with its more than 20,000 paid subscribers. Rates: 7c a word classified; $4.20 an inch for display advertising. That great beekeeper, George S. Demuth, is editor, for whose beekeeping teachings 20,000 beekeepers subscribe.

WILL EXCHANGE radios for honey or bees.
Ekstam Hardware, Larrabee, Iowa.

A Glance Through the South

(Continued from page 543)

Dr. Whitcomb is slowly getting returns on the last questionnaire regarding package standardization. They are not coming in quite as fast as the previous ones, and it is hoped that package shippers will kindly hurry them in, so that all possible speed may be attained in this problem.

Young Harry Laidlaw, grandson of Mr. Charles W. Quinn, and for the past three years on the inspection force in Louisiana, enrolled in the Louisiana State University for the coming year. He will be employed by the southern station in general apiary work. This will give the station the services of a practical beekeeper, thoroughly familiar with apiary conditions in the South and personally acquainted with every beekeeper in the state and many from outside the state.

Young Laidlaw, like many Louisiana State University students, typifies the ideal of former Governor John M. Parker when he practically fathered the new institution with a slogan of "Every boy and girl in Louisiana should have an opportunity to earn a college education if they wish." Laidlaw is practically working his own way through school.

The Berlin Conference of the Apis Club

(Continued from page 543)

vidual bees in a search for the mite, **Acarapis woodi.** Miss Betts, of England, presided over the afternoon session.

The second day began with a visit to the Ullsteinhaus printing establishment, a model plant with thousands of employees. This was followed by a sightseeing tour through the city, during the course of which an opportunity was given to see the famous Drory collection of bee books. Following this the city of Berlin bestowed a special honor on the Conference by giving a dinner in honor of the Apis Club at the Rathaus (city hall). The Minister of Agriculture for the German Republic, Doctor Dietrich, was present in person. After-dinner, or, rather, "during-dinner," talks were given by the Minister of Agriculture, by Doctor Wutsky, representing the city of Berlin, and by Doctor Jaubert, of France.

Following the dinner, another session was held at the Institute in Dahlem At this time Doctor Freudenstein gave an interesting account of having prepared sections showing

Acarapis woodi lodged n the vestibule formed in front of the first spiracle by the flap, or "lobe projecting back from the rear margin of the protergum," to use the words of Snodgrass. The writer was privileged to see these excellent preparations. Doctor Freudenstein found the mite located in this vestibule in both queens and workers. He believes that one of his slides shows a larval mite. Doctor Jaubert presided at this session, which lasted until almost dark. Later a large number met for the evening meal in a cafe in the city.

The third day began with the showing of interesting microscopic preparations by Doctor (Mrs.) Rosch (the wife of Dr. G. Rosch), illustrating the viability in various media of spermatozoa from the drone. One preparation showed that the spermatozoa can remain alive and apparently normal for at least twenty-four hours outside the bee. Doctor Freudenstein exhibited his sections described the day previously, and Doctor Bischoff exhibited some bees in amber. Doctor (Miss) Beling showed an extraordinarily instructive film, made by her this summer at Doctor Armbruster's Institute, which gives in detail, by means both of ordinary and slow motion pictures, the complete process of gathering pollen. One of the striking scenes is that in which the bee transfers the load of pollen to its pollen basket while hovering near the flower on which it is working. Doctor G. Rosch, who made a name for himself by his work on the division of labor while working for his doctor's degree under Professor v. Frisch, showed a film on the "speech" of the honeybee. The writer missed seeing this film. The rest of the day, until dusk again, was taken up by the reading of papers. One of these was by Miss Betts, telling of her work with feeding bees sugar syrup to determine the effect of temperature on the behavior of the bees in taking the syrup, the time required, the load carried, and other related factors. Reverend Adamec, of Czechoslovakia, presided over the afternoon session, while the writer had presided in the forenoon.

The third day's program had marked the last of the meetings to be held in Dahlem. During the day it had been announced that Miss Betts was to be the new president and that the next conference would be held in London in 1930. A list of newly elected fellows and vice-presidents from several countries had also been read. The following were chosen as fellows from the United States: Mr. Hambleton, Mr. Snodgrass, Doctor Sturtevant, and the writer.

It happened that the Apis Club Conference coincided in time with the celebration of the anniversary of the founding of the German Republic. Among the features of the celebration going on in Berlin during the evening of the third day of the Conference were several special musical programs. One of these was a gala performance at the City Opera House. A number of tickets for this affair were distributed among those at the Conference on the third day, and so the writer was one of the group from the Apis Club present at the opera house that evening.

The fourth and last day of the Conference marked the climax. The morning began by boarding a boat at Pichelsdorf in Berlin for a ride through the beautiful and extensive lake region, which lies within the city limits of Berlin, past Potsdam, and to a point on the Templiner See where tables were all set and waiting in a cafe not far from the pier and with a fine view over the lake. En route the Wahnsee bathing beach had been passed, a municipal beach capable of holding thousands and thousands. A stop had also been made to inspect a queenbee mating station maintained by the Institute.

After the mid-day meal on the Templiner See, a visit was made to an experimental apiary kept in the vicinity by Doctor Armbruster, and then a hike was taken to Doctor Armbruster's summer home nearby on the lake. When the whole company was assembled they were conducted to a place on the shore of the lake where tables had been set for coffee. After this was served, the last session of the Congress was held, with Reverend Girtler presiding. Music was also furnished on this occasion.

By the time everyone was back at the cafe near the landing place it was dusk, but the tables were found set and waiting once more. During the course of the repast Mr. Baldensperger expressed the hearty thanks of all present to Doctor Armbruster and his associates for the great amount of work and trouble which they had undergone in making such elaborate arrangement for the Conference as were evidenced on every hand. He also took occasion to point out how such gatherings promote true international understanding and good-will. The sentiments which he expressed on this point were enthusiastically applauded by all. Doctor Rasmussen, of Denmark, paid tribute to the part played in the Conference by the ladies, especially from the standpoint of their scientific achievements, and intimated that this marked the opening of a new era in beekeeping.

All too soon came the hour to board the boat for the return trip. As the boat steamed away in the darkness, Doctor Armbruster and the Baldenspergers, guests of Doctor Armbruster, were left behind amid shouts of farewell and the waving of handkerchiefs. The boat only went to Potsdam, where everyone debarked and proceeded by train to Berlin or elsewhere. This marked the end of the greatest international apicultural conference yet held.

A few of the visitors remained over in Berlin, and so undoubtedly some "afterswarms" settled at the Institute in Dahlem on the next day. For the writer, however, time was limited because on that day he was due on board ship at Bremerhaven, and to arrive there on time meant leaving Berlin in the early morning. The hour was late on arriving in Berlin from Potsdam. It happened, therefore, that a wild dash had to be made by taxi across Berlin next morning to the station, where I arrived too late to buy a ticket, but just in time to catch the last train which would give me a chance to catch the boat.

For the writer the Berlin Conference represents four of the busiest and most instructive days ever spent at a beekeepers' gathering. It was a great privilege to meet so many outstanding beekeeping workers personally, to get their viewpoints, and to hear them discuss their latest work. It was also a big saving of time and money to meet them all assembled together under one roof, because to have traveled around Europe to hunt up each one personally at his place of work would have involved weeks in time, as well as a big outlay of money, to say nothing of the inconvenience. It is to be hoped that some time in the near future economic conditions will be such that a really representative international beekeeping congress may be held in the United States, so that more of our own beekeepers may share in the benefits which come from participation in such gatherings.

Meetings

Illinois Annual Meeting

The thirty-ninth annual convention of the Illinois State Beekeepers' Association will be held at Springfield,

Illinois, at the St. Nicholas Hotel, on Tuesday and Wednesday, December 3 and 4, 1929. Prominent speakers are being secured for this meeting from outside states and one or two outstanding beekeepers of Illinois will appear upon the program. The annual banquet of the association will be held at the St. Nicholas Hotel on the evening of December 3. Any beekeeper, whether a member of the association or not, is invited to attend. A copy of the complete program will be mailed upon request to those making application to the secretary of the association, Vivarium Building, Champaign, Illinois.

V. G. Milum, Secretary.

Minnesota Meeting

The annual meeting of the Minnesota Beekeepers' Association will be held December 3 and 4 in connection with the beekeepers' short course, which will extend from December 2 to 6, inclusive.

The meeting will be held at the University Farm, St. Paul, Minnesota, and a large attendance is hoped for.

Report of Apiary Organization and Honey Production in the Intermountain States

This is a preliminary report of study made by E. L. Sechrist, associate apiculturist of the Bureau of Entomology, and R. S. Kifer, associate agricultural economist of the Bureau of Agricultural Economics, both of Washington.

The study was made in the states of Colorado, Idaho, Montana, Utah, and Wyoming, during 1928, and takes up apiary management, records, expenses, production, etc., as given by representative producers in the sections covered.

Related studies dealing with the present method of marketing and an analysis of the consumer demand for honey have been made and are now on the way. They will be available later. Similar studies will be made in other sections of the country from year to year.

The report is brimful of interest and deserves a more extended account than can be given here. Copies may be secured free of charge by writing to the Office of Bee Culture Investigation, Bureau of Entomology, Washington, D. C. It is a mimeograph report and every commercial beekeeper will be helped by going over it carefully this winter before he plans his season's work.

A total of 25,845 colonies were included in the apiaries from which complete records were obtained. Eighteen thousand, six hundred and thirty-three colonies were run for extracted honey, the remaining 7,212 for comb honey.

The intermountain region is one of the most important in the United States, producing surplus honey. Most of the honey is shipped out to eastern markets and to export trade. Most of the beekeepers depend on their bees for their income.

The report indicates a wide range in methods and practices, some producers making great economies, others operating at high cost. The study is based on the records of thirty-nine producers from about 150 colonies to as high as 1800 colonies.

The yield of extracted honey ranges from thirty to two hundred pounds, and comb honey from one to seven cases per colony. The yield was as good for the large producers as it was for the small ones. In general, an operator with more colonies than he himself could care for employed extra help. There were some producers, however, who cared for a large number of colonies with less than the average labor and who hired extra labor only at the time of taking off honey.

The average cash outlay for apiaries of less than four hundred colonies for extracted honey was $2.81 per colony, comb honey $3.14 per colony. For 1200 or more colonies the cost for extracted honey was $4.03 per colony, for comb honey $7.44 per colony. The hours of labor on the part of the beekeeper or his family in smaller units was 859 for extracted honey, and 1094 for comb; in the larger units, 1309 for extracted honey, and 2191 for comb honey. The report itemizes expenses and costs through the year, and includes investment for apiaries of different sizes and the labor returned for both comb and extracted honey.

A most noticeable point is the splendid returns shown for comb honey producers in favorable locations. Commenting on the figures, the report says: "The production of comb honey can be carried on successfully only in certain sections having a character of honeyflow and other requirements necessary to insure a large crop of comb honey of fine quality. Producers have found some of the essentials for the production of fine comb honey to be a rapid flow of the quality wanted combined with freedom from propolis and from honey of undesirable quality. Such locations are few, but they are quite regularly productive of good crops of honey. Satisfactory locations are becoming fewer because the market demands an increasingly higher quality."

This is a brief and hasty summary and does not by any mans include all of the important points. Beekeepers generally will be well repaid for a study of the report.

AMERICAN HONEY INSTITUTE
FOUNDED 1928
BEE INDUSTRIES ASSOCIATION OF AMERICA
CHAMBER OF COMMERCE BUILDING
INDIANAPOLIS

DR. H. E. BARNARD, PRESIDENT

Honey in the Bakeshop

"Honey in the Bakeshop" is the tile of a booklet prepared by the American Honey Institute for beekeepers to use in soliciting their bakers' trade. The booklet is now ready for mailing and sample copies will be sent upon the receipt of five cents in stamps. Thus far requests have come in from sixty beekeepers in twenty states.

Bakers are very much interested in improving the quality of their goods, and there is an increasing recognition among them of the value of honey in this connection. At their recent convention, held in Chicago, considerable time was spent in the discussion of cookies and how much better certain types of cookies were when honey was used in the mix. (See advertisement on page 568.)

Large Demand for "Honey Helpings"

The Institute has never experienced two busier weeks than the past two, for requests from home demonstration agents, kindergarten teachers, food specialists have been coming in every day for our leaflet, "Honey Helpings." Its reception is very gratifying.

Beekeepers have been sending in about as many requests as others, and we wish our budget was large enough to permit sending sufficient quantities to take care of all requests. However, since the Institute was organized chiefly to work with the home economic women, and since it has only a thousand copies to mail out each month, it is felt it will do more good to get this literature in quantity into the hands of teachers. Beekeepers can easily get the single copies sent to them duplicated for their own use.

Perhaps we can work out a plan of selilng the mimeograph copies in quantities of fifty, one hundred, or more.

New Booklet, "Frozen Desserts, the Automatic Way," Includes Honey Recipe!

A very attractive 30-page recipe booklet entitled, "Frozen Desserts, the Automatic Way," has just been issued by the Evaporated Milk Association of Chicago. Through a number of honey suggestions sent by the Institute to this association, their home economic director was influenced to experiment with honey and evaporated milk to find a satisfactory formula for a honey-milk frozen dessert. The result was a "Honey Mousse," the formula for which will be found on page seventeen of this cleverly illustrated booklet. Send to the association at 231 South LaSalle Street, Chicago, for a copy.

General Electric People Interested in Honey Formulas

The home economics department of the General Electric Refrigerating Company also appreciates the appetite appeal which honey brings to desserts. Miss Edwina Nolan, in charge of the home economics department, writes that "We are writing a new cook book and, as many people prefer honey to any other sweet, I think it is very necessary to include honey in some of our desserts. Will you please send me your recipe book?" Of course the Institute sent her plenty.

Quartermaster Corps Subsistence School, U. S. Navy, Includes Honey in Instruction

Lieutenant M. R. Grady, a member of the Supply Corps, U. S. Navy, writes: "I have recently noted an article in the local papers about the convention of the Institute. In connection with the course of instruction in this school, the subject of honey comes to me, so please advise me of sources of information on the subject and any matter at hand which may be of assistance."

"Food Value of Honey"

The Institute has just issued a two-page mimeograph circular on the food value of honey, which includes the usual information, including the energy value compared with value of other sugars and typical analyses. This is for general distribution, particularly among people interested in food distribution.

Control, Not Eradication

Fire versus sterilization is a splendid article in your October number. I do not believe in destruction by fire, except in cases of wilful neglect. We can never eradicate foulbrood, we can only control it.

Let's quit talking about eradication and proceed to devise means of control. Then we will get somewhere.

Wilbur Sheron, Indiana.

Doings in the Northwest

By N. N. Dodge

On September 24, 1929, the Federal Farm Board announced a loan of $135,000 to the Mountain States Honey Producers' Association. Mr. A. W. B. Kjosness, manager of the big honey marketing cooperative, was in Washington for two weeks and appeared twice before the Board prior to the granting of the loan. The financial backing of the Board will be of great value to the association, since it will provide working capital. A further notice of this loan is given in a department release published on page 563.

With great quantities of honey tied up for weeks in the holds of ships crossing the ocean, and in freight cars in this country, and with large steamship and railroad freights to be paid, the association has previously been forced to finance its business with funds obtained from loans on members' honey stored in bonded warehouses, which has resulted in delayed returns to producers.

Under the new plan, Mr. Kjosness states that the association can make immediate and substantial payments to producers, with the probability of at least a 6-cent per pound return by January of future seasons, and complete settlement much sooner than in the past.

* * *

North Dakota Honey Through the Port of Seattle

Three carloads of honey were shipped from North Dakota and exported from the port of Seattle during September. One of these, loaded at Fargo, contained 776 cases of two five-gallon cans of honey, one of the largest car lots of honey ever reported entering Seattle. The other cars were from Dwight and Smith's Siding.

* * *

New Members in Mountain States Association

Ninety applications for membership in the Mountain States Honey Producers' Association were received by President Brittain during September. Many of these were from beekeepers in North and South Dakota, with several from Nevada, Minnesota, Iowa, and Wisconsin.

* * *

Western Washington Fair Has Excellent Display

The Western Washington Fair at Puyallup had an excellent display of honey this year, according to Superintendent Ross. Julian Joubert, of Enumclaw, took the sweepstakes and a total of thirteen ribbons. Readers will remember a story about Joubert which appeared in the January number.

* * *

Good Oregon Display at Salem

Beekeeping in Oregon was well represented at the state fair at Salem. Superintendent Williams reports Frank Glassen as having the finest display. Mr. Williams will also superintend the honey exhibits at the Pacific International Livestock Exposition, to be held in Portland, Oregon, October 26 to November 2. Further notice of this is given under "Meetings and Events" in this number. Entries are customarily received from many western states and British Columbia.

* * *

Northwest Prices Irregular

Prices in the Northwest are irregular, the Portland market being as yet little changed from a year ago, whereas Seattle and Tacoma retailers are quoting 15 to 20 per cent higher prices.

Cellophane-wrapped comb honey, which is rapidly becoming popular, is going to the storekeeper at $5.00 per case of twenty-four 12½-ounce sections, with 5-pound pails, the size in which the bulk of the honey reaches the consumer, at $8.40 per dozen. Mr. T. L. Ball, manager of the Superior Honey Company, reports 10-pound pails retailing for as little as $1.15 in Ogden, with a generally demoralized condition in that market.

* * *

Washington State Meeting at Mount Vernon in December

The annual meeting of the annual State Beekeepers' Association of Washington will be held this year at Mt. Vernon, early in December. President Mandery has been at work for several months planning the program and engaging speakers from among the leaders in the Northwest beekeeping circles. The convention this year is held west of the Cascade Mountains, and a meeting place east will be selected for next season, according to the established custom of alternating.

* * *

Oregon Meeting at Pendleton, November 4 and 5

Secretary H. A. Scullen of the Oregon State Beekeepers' Association has sent out notices for the annual convention to be held at Pendleton, November 4 and 5.

Hall to Make Survey of Marketing in Northwest

Mr. T. R. Hall, representing the United States Bureau of Agricultural Economics, has been stationed in the Northwest with offices at 415 Arctic Building, Seattle. Under the direction of Mr. Harold J. Clay, who is in charge of the beekeeping work of the Bureau in Washington, Mr. Hall is making a careful survey of honey marketing conditions. He hopes to make contacts with many beekeepers for a closer study of their problems and to report accurately the conditions and developments within his territory.

* * *

Severe Forest Fires This Year

Forest fires have been exceptionally numerous and severe during the late summer and early fall. Eleven persons were killed and damage to the extent of hundreds of thousands of dollars was done in Washington and Oregon. The hunting seasons in both states were deferred until rain had lessened the fire hazard.

Although several beekeepers have reported the burning of fireweed pastures, most of the destruction came after the height of the blooming period, and therefore did not curtail the present crop seriously, although it may check fireweed growth for next year.

Freshly burned areas customarily produce a fireweed stand the second or third year, so that the 1929 depredations in standing timber should prove beneficial to beekeeping several years hence.

No reports of loss of bees through forest fires have been received, although John Sentz, of Snoqualmie Falls, had a narrow escape, and only quick work in moving one of his outyards saved it from the flames.

Minnesota Notes

The University of Minnesota has purchased the apicultural library of Rev. Francis Jager, St. Bonifacius, Minnesota. This is one of the most complete collections of books and periodicals pertaining to beekeeping that has ever been gathered together in this country. It is particularly rich in the number of old and rare German works.

The University has also just purchased a complete set of the Bee World.

Mr. H. G. Ahrens, from the University of Wisconsin, and Mr. Erdman Braun, from the University of Manitoba, have accepted positions with the beekeeping section of the Division of Entomology of the University of Minnesota. They will devote part of their time to teaching and part to working for advanced degrees, doing their research in apiculture.

Stings Are a Real Danger to Some People

By E. G. Carr

Every time I have read or heard of persons being stung to death by honeybees I have believed someone was drawing on their imagination for a good story. Recently, however, I have learned of a case the authenticity of which cannot be doubted, which makes me think there may be real danger of death, to some persons, from honeybee stings.

Besides raising queenbees for market, Mr. Robert B. Spicer, Wharton, N. J., is employed at the carpenter trade. After he is through with his day's work carpentering, Mr. Spicer does whatever is needed in his queen rearing apiary. About two weeks ago he came from the queen yard in the evening, and after removing his clothes dropped them in a closet. The following day, after lunch, Mrs. Spicer went upstairs to put on an afternoon dress. Seeing Mr. Spicer's clothes, she hung them up in the closet. When she reached the first floor she felt something in the upper part of her sleeve. She grasped the sleeve and received a bee sting, which she removed. Knowing how susceptible she was to the bee sting poison, she started across the room to a medicine closet for some remedy for the sting, when her sight failed. She sent her small son for a neighbor, who secured a physician.

For two hours no pulse could be detected and the physician declared life had ceased. Eventually, however, consciousness returned, without, as I understand it, the physician being able to apply any remedial measures. A week after, Mrs. Spicer told me that she felt normal, except for a dullness in the region of the heart.

Supposedly the bee came in with Mr. Spicer's clothes and crawled on Mrs. Spicer when she hung them up, without her noticing it. So susceptible is Mrs. Spicer to the honeybee sting poison that she is affected if she uses the same towel as Mr. Spicer.

While death did not actually follow this one sting, one can easily believe that a number of stings might have produced that result. With the knowledge of this case, I am more inclined to credit reports of persons stung to death by honeybees.

About Propolis Poison

I wanted to be dead sure of the source the bees get the poison from. I barked up the wrong tree several times, but in 1918 I found it, or at least one source. The wise ones will laugh, maybe, but here it is: laurel leaf cottonwood buds, of course, but the buds must freeze on the ends of

the young growth of the limbs so the leaves will not start to grow. This causes the sap to change ferment or turn to a thick, sticky wax or propolis proper. The bees can get quantities o fit. Not many will know the laurel leaf cottonwood. It is just half way between a willow and cottonwood; grows north — Wyoming, Montana, Colorado. I have kept bees in Alabama. No propolis poisin in that state nor in California, but in Montana people have had to quit the bee business after having several thousand dollars invested. In Montana, it gets 40 degrees below zero. This freezes last year's growth of the limbs and causes the sap to be poison or more plentiful. I have put the wax juice of these buds on my arms to test out the stuff, and, after being poisoned badly for ten years in four different states, I claim I should know something about it. The buds poison the same as the propolis in the hives or section boxes of honey; smells the same and I say is the same. Now, you wise ones who learn all they know out of books, climb a tree and test it out.

I believe bees get poison to mix with propolis from other sources too.

L. W. Benson, Shideler, Okla.

Microbiological Studies of Honey

This is the title of a bulletin written by A. Grant Dochhead and Doris A. Heron, Division of Bacteriology, Dominion Experimental Farms. It is a scientific study of honey fermentation and the effect on honey of sugar-tolerant yeasts.

We cannot go into lengthy review, but it is an interesting investigation, giving results of a microbiological study of thirteen samples of fermented honey secured by the Bee Division's Experimental Farms. In all cases yeasts have been found to be the organisms responsible for spoilage—yeasts that are especially tolerant of sugar and capable of developing in a high concentration which will not permit the growth of ordinary yeast.

Yeasts are found to be present in the flowers and have also been obtained from the honey tanks, in the air, and on the equipment in the honey house.

Daisies, the Golden Flowers

One would not think that the white and yellow daisy of our open fields and meadows was a foreigner, an immigrant, no more native to this continent than the descendants of European and African human races who people it. But so it is. The early settlers brought it with them, either deliberately or unintentionally in forage for their animals, and it has run wild and made itself quite at home; so much so, indeed, that it is regarded as a pernicious weed, in spite of the bright beauty of its shining head.

One would not think, either, that this simple flower, with its single row of white rays around a golden center, was at all related to the huge, multiform, many-hued, showy chrysanthemums that lend both glory and beauty to the sidelines at football games in the fall. But this also is the case, for the field daisy and the big Japanese balls of bloom are both members of the same genus, and its name is the same as the one adopted as the trade name of the Oriental flower, **Chrysanthemum.** It is compounded of two Greek words that mean "golden flower," a most appropriate title.

One would not think, finally, that the daisy had anything poisonous about it, bothersome weed though it sometimes is. But it has, or at least one of its very near relatives has. Fortunately, the poisonousness is not effective against man, but against his innumerable armies of enemies, the insects. Pyrethrum powder, also known as Dalmatian insect powder, is made from the young flower heads of a chrysanthemum species very closely allied to our common white daisy.

Extension Beekeeper for Nebraska

We learn through Prof. Don C. Whelan that the Nebraska College of Agriculture has recently made provision for extension work in beekeeping. Mr. Orlando S. Bare is the new extension entomologist, who will give part time to beekeeping. He served in the World War and has had experience in beekeeping with his father at home. He is now getting acquainted with Nebraska beekeepers in preparation for his work for the winter and spring.